THE *Soybean Digest*

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IN THIS ISSUE

EDITOR'S DESK

The Grading Standards Agitation for changes in the official grading standards for soybeans has been instituted in Illinois and Indiana by the grain dealer trade associations. Most commonly suggested change seems to be the combining of dockage and foreign material into one item, allowing up to the present level of the two items, or 3 percent.

Misunderstanding seems to be rampant pertaining to changes which supposedly were made in the official grade standards in 1947. Actually, there were no changes in 1947. Hearings were held by the grain standards branch of the Production and Marketing Administration, but sentiment expressed at the hearings was predominantly opposed to change, so no changes were made.

Purpose of federal standards should be the establishment of a common basis of trading which can be used by growers, dealers, processors, all others engaged in the handling of a crop. Soybeans sold by a grower, if properly graded, should be sold at each step along the line on the same grade basis. No. 2 beans should be No. 2 beans, regardless of who buys or sells.

During the war years processors and local grain dealers purchased soybeans for the account of the Commodity Credit Corporation, and the purchases were made according to the standards established by that agency. With the start of the movement of the 1947 crop trading went back into private hands, and on the basis of the official grade standards. Local grain buyers, accustomed to the CCC standards, bought beans and then were unpleasantly surprised when they were assessed dockage by the processor when they had assessed no dockage against the grower. Some rather severe losses were sustained.

As a result of those losses there has come the suggestion that the dockage and foreign material be combined, and that up to 3 percent of the two be allowed.

But let's take a close look at the suggestion. On the basis of $4 soybeans, each pound is worth 6-2/3 cents. A total of 3 percent dockage and foreign material combined would allow up to 1.8 pounds per bushel. Value of that 1.8 pounds would be about 12c, using the above figure. The man who did a sloppy job of combining, brought his beans to market with just under 3 percent dockage and foreign material, would gain 12c on every bushel of beans. The man who did a careful job of combining and cleaning, removed all weed seed, stems and dirt, would be penalized to the extent of 12c per bushel as compared with the sloppy operator.

Good grading standards will reward the careful grower, penalize the sloppy operator. Certainly the above suggestion accomplishes the opposite. The careful operator would be ahead to clean his beans, then dump in 175 pounds of dirt, benefitting to the extent of $12 per 100-bushel load of soybeans. That type of thing is what we must discourage—not encourage.

Logical answer lies in cleaner combining by the grower, more careful grading by the buyer, watching each load carefully in spite of the harvest season rush. Without careful grading there will be further losses. Unless dockage penalties are invoked against the sloppy combine operator, high percentages of dockage will continue.

And we must recognize that 1947 weather conditions were conducive to growth of grass and weeds—made it difficult to cultivate—and resulted in unusually dirty soybeans.

28th Annual Convention Draw a big red circle around the dates of September 13, 14 and 15. It is not too early to make your hotel reservations for the 28th annual convention of the American Soybean Association at the Hotel Peabody in Memphis, Tennessee, September 13, 14 and 15. The formal convention will start on Monday morning, September 13, with an informal get-together on Sunday evening for those who are on hand. Persons who have not previously visited Memphis should plan to arrive on Sunday morning if possible, as there will be tours and open-houses on Sunday if enough persons are interested.

Formal sessions will be held on Monday and Tuesday, with the banquet on Tuesday night. On Wednesday there will be a tour through the Delta section of Arkansas, including the Arkansas Delta Experiment Station, cotton plantations, a processing plant, oil refinery and a margarine plant. Bus transportation will be provided for those desiring it. Persons driving to the convention from the North will probably want to drive their cars on the tour, departing from the tour terminus for the return trip.

A Job to Be Done Failure to secure amendment of the Rivers Bill to place it on a domestic fats basis when it was up for consideration on the floor of the House of Representatives again demonstrated clearly the ineffectiveness of the American Soybean Association. Too few members, too widely scattered, too poorly organized, too poorly financed—the American Soybean Association is not yet the potent legislative body which it should be to adequately represent an industry of the stature of the soybean crop. We have come a long way since institution of the *Soybean Digest* in 1940—but we have a long way to go yet.

Elsewhere in this issue you will find announcement of the employment of a field man for ASA. That is the first step toward strengthening the organization and making it effective. We must make people conscious of the soybean crop and its importance—which means education. We must make members of Congress and the state legislatures conscious of the soybean crop, the American Soybean Association, and its objectives. That, too, means education. Both require financing.

COMPLETE REPEAL BILL PASSES HOUSE!

Rivers Bill Goes to Senate Finance Committee

Efforts of the American Soybean Association to amend the Rivers Bill to include only margarine made from domestically produced fats and oils proved unsuccessful. An amendment, introduced by Congressman Ralph Harvey of Indiana, was written to conform to the reciprocal trade agreements. It would have removed the federal taxes on colored and uncolored margarine made from domestically produced fats and oils, and retained the present taxes on margarine consisting of more than 1 percent of ingredients originating outside the United States. The amendment was voted down by voice vote.

Pressure for passage of margarine tax repeal legislation pyramided with the passage of time. While 121 members of the House of Representatives voted against discharging the committee on agriculture from responsibility on the Rivers Bill, only 106 Congressmen voted against the bill when it reached the floor.

At this writing the bill is in the hands of the finance committee of the Senate, where it seems destined for immediate action. The committee is deemed friendly, and is expected to hold short hearings then report the bill out to the floor.

The immediate job is that of amending the bill to place it on a domestic fats basis. That may be done in committee or on the floor. Such an amendment is vital to the producer of soybeans, cottonseed, peanuts and corn.

Much of the blame for the current status must be laid at the feet of the Midwestern members of Congress. In a letter to all members of Congress last January the American Soybean Association pointed out the current pressure for repeal of federal margarine taxes, and suggested that rather than fight blindly something which was sure to come they should join in the move to place the repeal on a domestic fats basis.

With the exception of a few keen-minded Congressmen who have kept in touch with the folks back home and with changes in agriculture in recent years, our pleas were ignored. The Republican members of the committee on agriculture turned a deaf ear.

If a complete repeal bill passes both houses the membership of the American Soybean Association can well point to every Republican member of the committee on agriculture of the House of Representatives, including Chairman Clifford Hope, and say:

> "There is a group of short-sighted men who failed to keep in touch with public opinion, lost sight of progress, lived in the past, and sold every producer of protein, fat and oil in the nation down the river in a blind attempt to curry further favor with a few dairy leaders who were protecting their jobs and not the producers of dairy products."

HOW YOUR CONGRESSMAN VOTED ON REPEAL

Is your Congressman alert to agriculture's needs? Your primary election is your chance to indicate whether he represents you—or some misguided belief prevalent when he first went to Congress a dozen years ago.

Where did your Congressman stand on the repeal of the Federal taxes on margarine? Was he awake and alive to the current pressure? Or was he trying to maintain and protect antiquated dairy pricing standards by voting to maintain the status quo? The vote of Congressmen from the Midwestern states on the Rivers Bill after it had been discharged from the Committee on Agriculture is shown below:

Voted for Rivers Bill

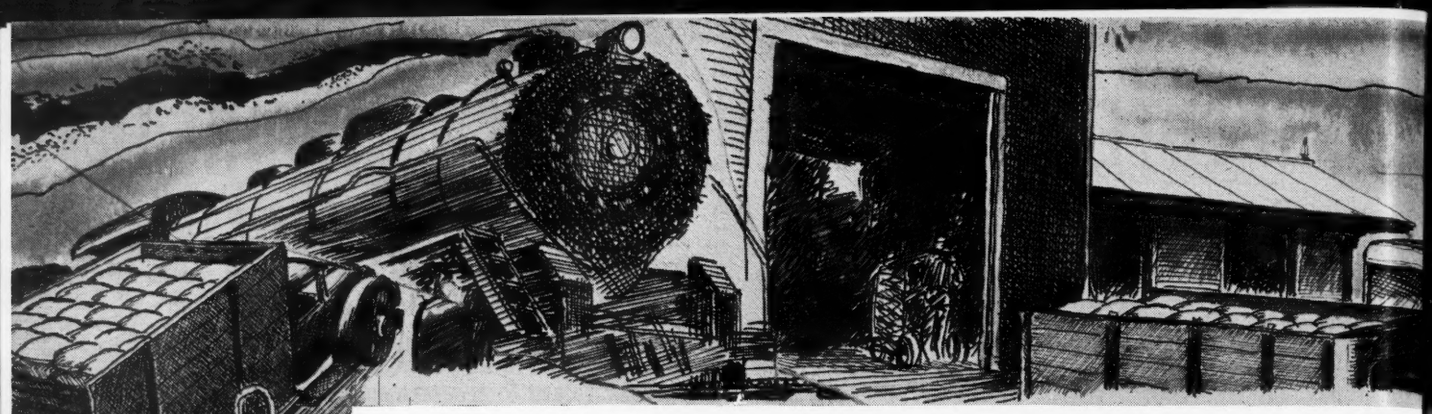
Ray J. Madden, Ind.
Forest A. Harness, Ind.
Noble J. Johnson, Ind.
Gerald W. Landis, Ind.
Edward A. Mitchell, Ind.
Ralph Harvey, Ind.
Louis L. Ludlow, Ind.
William L. Dawson, Ill.
Richard B. Vail, Ill.
Fred E. Busbey, Ill.
Martin Gorski, Ill.
Adolph J. Sabath, Ill.
Thomas J. O'Brien, Ill.
Thomas L. Owens, Ill.
Thomas S. Gordon, Ill.
Robert J. Twyman, Ill.
Ralph E. Church, Ill.
Leslie C. Arends, Ill.
Rolla C. McMillen, Ill.
Charles M. Price, Ill.
Roy Clippinger, Ill.
George H. Bender, Ohio
Charles H. Elston, Ohio
William E. Hess, Ohio
Raymond H. Burke, Ohio
Homer A. Ramey, Ohio
John M. Vorys, Ohio
Walter B. Huber, Ohio
Michael J. Kirwan, Ohio
J. Harry McGregor, Ohio
Earl R. Lewis, Ohio
Michael A. Feighan, Ohio
Robert Crosser, Ohio
Frances P. Bolton, Ohio
Albert L. Reeves, Mo.
Claude I. Bakewell, Mo.
Frank M. Karsten, Mo.
Edward J. DeVitt, Minn.
Walter H. Judd, Minn.

Voted Against Rivers Bill

Thomas E. Martin, Iowa
Henry O. Talle, Iowa
John W. Gwynne, Iowa
Karl M. Le Compte, Iowa
Paul Cunningham, Iowa
James I. Dolliver, Iowa
Ben F. Jensen, Iowa
Charles B. Hoeven, Iowa
Charles A. Halleck, Ind.
George W. Gillie, Ind.
Earl Wilson, Ind.
Chauncey W. Reed, Ill.
Noah M. Mason, Ill.
Leo E. Allen, Ill.
Anton J. Johnson, Ill.
Robert B. Chiperfield, Ill.
Edward H. Jenison, Ill.
Sid Simpson, Ill.
Charles W. Vursell, Ill.
C. W. (Runt) Bishop, Ill.
William M. McCulloch, Ohio
Cliff Clevenger, Ohio
Clarence J. Brown, Ohio
Walter E. Brehm, Ohio
Alvin F. Weichel, Ohio
P. W. Griffiths, Ohio
Wat Arnold, Mo.
Dewey Short, Mo.
Parke M. Banta, Mo.
Clarence Cannon, Mo.
August H. Andresen, Minn.
Joseph P. O'Hara, Minn.
George Mac Kinnon, Minn.
Harold Knutson, Minn.
H. Carl Andersen, Minn.
John A. Blatnik, Minn.
Harold C. Hagen, Minn.

No Vote

Robert A. Grant, Ind.
William G. Stratton, Ill.
Everett Dirksen, Ill.
Edward O. McCowen, Ohio
Frederick C. Smith, Ohio
Thomas A. Jenkins, Ohio
Henderson H. Carson, Ohio
Max Schwabe, Mo.
William C. Cole, Mo.
Charles J. Bell, Mo.
Marion T. Bennett, Mo.
Walter C. Ploeser, Mo.



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GROWERS

On Sandy Soil

How to grow soybeans on Wisconsin's sandy soils is told by a circular issued by the College of Agriculture at Madison.

Soybeans are heavy feeders of plant food. And their root systems contribute little organic matter to the soil. That's why the crop does well on soils high in organic matter, and usually fails to produce profitably on "badly run" soils.

Attempts by Wisconsin investigators to substitute commercial fertilizer for organic matter have thus far met with only moderate success. It is safe to assume that trying to produce soybeans on sandy soils with neither manure nor fertilizer will result in utter failure or rapid soil exhaustion or both.

Organic matter in the soil helps the plants to use commercial fertilizer more efficiently. So, a cropping sequence and soil treatment that will properly condition sandy soils for soybeans should be followed.

The sequence recommended by the circular is as follows: soybeans, oats and legume seeding or winter grain, legumes for hay and seed, and legume seed or hay and seed.

Copies of Stencil Circular 262, *If You Grow Soybeans on Sandy Soil*, by A. R. Albert, G. M. Briggs and C. J. Chapman, may be secured at 10 cents per copy while the supply lasts from Bulletin Mailing Room, College of Agriculture, Madison 6, Wis.

Canadian Booklet

For the Successful Farmer. New Soybean Guide, has been issued by Victory Mills, Ltd., of Toronto for the benefit of Canadian growers.

This 20-page nicely illustrated booklet carries considerable information on the "how" of soybean growing in Canada, including a variety zone map for southern Ontario where practically all the soybeans are grown.

"Canada can no longer freely import her fats and oils requirements, and it is necessary for us to promote production, both from a point of relieving our immediate shortage and to better our position in the future, so as to avoid being dependent on imports of these essential commodities which are produced in the far-flung corners of the globe," states the booklet. "It is recognized today that it is an economic and strategic necessity for Canada to be more self-sufficient in respect of these vital edible and industrial fats and oils.

"Soybeans are the only crop in Canada which produce edible vegetable oil in substantial quantities."

Under Irrigation

Many farmers in central Nebraska have had little experience with soybeans, but interest in this area is growing in this crop, according to *Capper's Farmer.*

"Max Junkin of Smithfield," the story in the farm magazine points out, "thinks soybeans may be the crop he is seeking to rotate with corn on his irrigated farm. Last year he planted Lincolns with a beet drill in 20-inch rows and harvested them with a combine. This field, the first he has grown, averaged 43 bushels an acre.

"Junkin," the story continues, "is looking for another cash crop because cornrootworm in his soil makes successive plantings of corn unprofitable. Other than small grains seeded with legumes, Junkin's most practical alternate crop has been sugar beets. Beets are a difficult crop because of special labor and fertilizer requirements. Soybeans have the advantage of spring planting, small labor requirements and put nitrogen in the soil. Several of Junkin's neighbors will try 10-acre soybean plots this year."

ASA Field Director

PAUL HUGHES

The appointment of Paul C. Hughes, Gillett, Ark., as field director for the American Soybean Association has been announced by Secretary Geo. M. Strayer.

Mr. Hughes will be engaged in contact work with the grain trade, soybean processors and growers in the heavy soybean producing areas of the Midwest and Midsouth.

Mr. Hughes received his B. S. degree in agronomy at Iowa State College in March. His first two years in college work were taken at Arkansas College of Agriculture and Mechanic Arts at Monticello, Ark. He was raised on a cotton-corn-livestock farm near Gillett, Ark.

Iowa Meetings

"How to Get Better Soybean Yields in Iowa," was the subject of four talks by Ward Calland, managing director of the National Soybean Crop Improvement Council, Decatur, Ind., in Iowa March 13-16.

The meetings were sponsored by Iowa processors. About 600 farmers and others attended the meetings. Audiences included farmers, grain buyers, elevator operators, college crop specialists, extension directors and processors.

Calland said great strides have been made in educating the farmer on the value of a ration properly balanced with proteins and vitamins and that further improvement in feeding practices will increase the demand for soybean meal.

Calland urged farmers in Iowa to increase soybean yields by planting adapted varieties, planting them from May 15 to June 1 in a good seedbed and on fertile soil, and keeping them free of weeds.

He cited research and experimental work in agricultural colleges of the Cornbelt to improve varieties and yields and lauded Iowa State College for developing the new Hawkeye bean for northern Iowa.

Calland urged farmers to use a harrow, weeder or rotary hoe on soybean ground just ahead and after planting, repeating this "rough treatment" to kill weeds after beans are a few inches high.

Meetings were held in Cedar Rapids, Waterloo, Fort Dodge and Des Moines.

Rowed Soybeans Gain

The great majority of Illinois soybean fields were planted in rows in 1947, according to figures released by A. J. Surratt, state agricultural statistician, Springfield.

For the state as a whole, 63.8 percent of all soybean acreage was rowed in 1947. This was an increase of 5.6 percent of row plantings over 1946.

Percentage of soybean acres rowed is highest in the northwest section of the state—85.3 percent; and lowest in the southeast section—19.2 percent.

Percentage of soybeans sowed solid grows smaller from south to north in the state.

North Carolina

The Roanoke variety of soybeans holds more promise for North Carolina growers than any other yet developed by the state experiment station, says Dr. R. P. Moore, director of the North Carolina Crop Improvement Association.

Prospects for 16,000 bushels of certified seed of this variety were lowered to 2,500 bushels because of bad weather, says Dr. Moore.

LETTERS TO THE EDITOR

Why of Oil Prices

TO THE EDITOR:

I shall be grateful if you will tell me why soy oil is now selling around 5 cents per pound less than cottonseed oil and only at about the same price as coconut oil—at times a cent or more less.

In the past there would be only a cent or so difference between cottonseed oil and soy oil, with coconut oil 4 or 5 cents less than soy oil. Why the change in differences in market prices of these oils?

There should be a reason, and as a soy producer I am curious to know why our product has been dropped back to mere competitor with the product of the little brown brother in the Philippines whose personal and production equipment consists of about enough clothes to make a nice, neat, close-fitting pair of running pants for a humming bird and a 50-cent machete, and who has no worries about cost of tractors, combines, labor, income taxes, and welfare surcharges. —Edmund D. Morrison, Washington, Iowa.

Chief soybeans on Ohio Agricultural Experiment Station farm at Wooster.

• *An appraisal of soil properties and farm enterprises as they jointly affect inclusion of soybeans in permanent farming on four great soil groups. Presented before the eighth annual conference of Ohio processors and agronomists at Worthington Ohio.*

By J. SLIPHER

Extension Soil Conservationist
Ohio State University

LANDS IN OHIO

for Future Soybean Growing

IT IS NOT ENOUGH that soybeans be produced within the boundaries of Ohio. Rather, a deeper issue is: on what kinds of lands and in association with what other farm enterprises would the bean enterprise fare best? Upon these two issues would seem to rest the fate of permanency or instability. Because they operate as foundation and natural forces, the weight of their influence will prevail in finding the permanent place of soybeans in our Ohio farm economy. Other factors are either of transitory or of minor significance.

In retrospect, we emerged 10 years ago from a pioneer period on introduction of the crop. Then widespread adoption of the crop followed the simultaneous advent of the combine harvester and the expansion of industrial processing facilities. If we any of us really knew how little forethought on the part of the farmer went into his ready acceptance of this additional crop, there might be cause for concern for the future of the enterprise. How many growers were and are yet casual opportunists?

Where Find Permanency?

To what degree is the soybean enterprise being built solidly on soil potential and organically into the collective group of enterprises of the farm? This presentation is addressed to those two considerations. Through them may be sought the solution to permanent farming with soybeans. By selecting out the land pattern that is "a natural" for the soybean, the industry has assurance of receiving a continuous and never failing supply of raw material.

To hasten the process of fitting the crop into its permanent place calls for a joint effort by the industry and agronomic technologists. Merely more activity will not suffice. It's approach that is needed, since efficiency in use of unlike land resources holds the key.

Lands for the Soybean

Of the 10 great soils in Ohio, four are adapted to the soybean enterprise. It is on them to the exclusion of others that the crop should find its greatest extension.

What and where are these soils that hold promise for the bean enterprise? Descriptively, they are:

THE GREY LANDS

Extensive bodies of ashey grey lands, possessing sluggish internal drainage, are better adapted to the soybean than to any other crop. Their flat to very mildly sloping topography (of 0 to no more than 4 percent slope) permit ease of operating equipment peculiar to bean production. Presenting the two extremes of the water spectrum, so to speak, they are both overwet and too droughty for corn in the same season. The tolerance of the soybean for these extremes argues for its supplanting corn on these soils. With corn displaced, the pattern of farming may well shift to crop farming exclusively. Accordingly, these areas offer opportunity of operating a sequence consisting of:

soybean, oats, wheat, clover seed
or soybean, oats, clover seed, wheat
or soybean, oats, clover seed

For such a system of seed farming, the equipment needs are simplified to one machine for harvesting of all crops. There is the obvious advantage of the harvesting periods being comfortably spaced.

Designated as "profile 1," the flat grey soil and, as "profile 2," the mildly sloping grey lands are situated:

a) IN NW OHIO—in western Putman, eastern Paulding, and in Defiance counties. A typical representative here is the Nappanee clay and silty clay.

b) IN NE OHIO—an extensive development extending in intermittent bodies east-west on the north face of the divide between Lake Erie and the Ohio River watershed. Large areas of profile 1 lie southwest of Cleveland and again overspread much of Ashtabula, Trumbull, and Mahoning counties. The heavier members of Condit, Trumbull, Mahoning and Ravenna are representative soil types.

c) IN SW OHIO— The flat reaches of the Illinoian glacial sheet in Brown, Highland, Clermont, Warren, and Clinton counties are made up of "profile 1" (Clermont silt loam) and "profile 2" (Avonburg silt loam.)

d) IN WESTERN OHIO— Crosby silty clay loam (profile 2) dominates areas in cen-

tral western, western, and south of the old lake bed area of north western Ohio.

Yield Expectancy

The grey soils yield poorly. However, their performance can be stepped up to 1½ to 2 times the current yield by the application of technological practices. If these are adopted and applied in the degree dictated by the deficiencies of the land, the grower can attain yields close to:

30 bu./acre on profile 1 land
35 bu./acre on profile 2 land

Since these yield levels are attainable they may be looked upon as "par" for each of these soils.

Suitable Practices

Evaluated by the "productivity balance" yardstick, the soybean-oats-wheat-clover-seed cropping pattern already mentioned scores favorably, namely:

S	O	W	Cl		
−½	−1	−1	+2.7	=	+0.2 crop effects
+¼	+¼	+¼		=	+0.75 residue effect
	600 lb./rotation			=	+0.45 fertilizer
	Water hazard on Profile 1			=	−0.40 erosion
			Net Credits	=	+1.00

Yearly gain in producing capacity — +0.25 of 1%

Since the effect of the improved productivity is cumulative, yield would rise progressively with time to bring the production to the "par" value already indicated.

To realize that ultimate goal will, however, require a bracket of practices suitable to the peculiarities of the grey soils. They are:

ON PROFILE 1

a)—"*bedding*" with lead-away ditches connecting with the dead-furrows.

b)—liming at a rate sufficient for the preference of that particular clover to be grown, the grey soils being lime deficient.

c)—fertilizing at a rate to provide 150 lbs./acre/year.

ON PROFILE 2

a)—terracing of slopes in excess of 1½ percent and planting and tillage on the contour.

b)—c)—liming and fertilizing as above.

THE DARK LANDS

There is good reason to continue the practice of growing soybeans in sequence with corn. Only the dark lands—the so-called "corn soils"— are capable of that pace. But only farms with a light to moderate livestock load will be interested. In any event the inclusion of the soybean will need to be counter-balanced by an added year of sod crop in the rotation.

The following pattern meets that specification:

Corn soybean — small grain — alfalfa alfalfa
40% — 20% — 40%

In lieu of two years of alfalfa, one may rig a rotation in which a sweet clover seed crop supplants alfalfa hay, namely:

corn, soybean, small grain, sweet clover
25% 25% 25% 25%

This scheme may fit an essential need on the Paulding clay, from which livestock may need to be excluded because of damage to tilth incident to tramping by grazing animals. On farms consisting of Paulding clay, the selection of crop farming to the exclusion of livestock is not without foundation.

Geographically, the soils of the dark group occupy a vast area within the Corn-belt area of the state. Identified by the designation "profile 8," their surface is slightly depressed, internal drainage slow but less sluggish than that of the grey group. They are marked by great retentive capacity for water and more available potash, lime, and phosphate than any group of soils in the state. Exclusive of the Paulding clay, all members of profile 8 display marked capacity to retain good tilth. A disposition to self-granulate favors free access of atmospheric air to the crop roots and to the nodules during the latter part of the growing season after machine tillage ceases.

Yield Expectancy

A higher order of performance on the part of the dark soils points to a yield expectancy of:

40 bu./acre on the Paulding clay
45 bu./acre on the other members

C	S	G	A	A		
−2	−½	−1	+2½	+½	=	−0.5 crop effect
+¼	+¼				=	+0.5 residue effect
	900 lb./rotation				=	+0.75 fertilizer
	Water hazard on Profile 8				=	−0.50 erosion
				Net Credits	=	+1.25

Yearly gain in producing capacity — +.25 of 1%

JOHN A. SLIPHER

Such an out-turn presupposes the continued use of certain practices appropriate for these kinds of land, specifically:

a) 175 lb./acre/year of single strength fertilizer throughout the rotation.

b) tillage of a sort to accentuate superior tilth.

c) diversion terracing to fend against surface water from adjacent higher ground.

Were we to score the foregoing rotation, we should find results as shown in table at bottom of page.

It is to be recognized that matching corn and soybean year-for-year with legume sod assures rising productivity. Input of organic matter exceeds out-go; three of the crop years favor renewal of tilth to amply offset damage during the remaining two (corn and small grain;) and the nitrogen balance is better than if the soybean members were omitted.

MOTTLED BROWN LAND

Light brown soils of mottled subsoil make up another land area for soybean production. They possess imperfect internal drainage; occupy mild slope, and generally are associated with either the grey or the dark soils. The larger bodies of this sort—identified as profile 3—are found on either side of the east-west divide and again in a broad broken zone north and south through middle Ohio.

Being intermediate in properties, the mottled brown soils justify no more than a moderate intensity of soybean acreage. Here the soybean would prove useful in relieving these lands of a part of their burdensome corn acreage, resulting in substantial benefit to soil productivity. To carry this out one would best adopt a "split" cropping pattern as exemplified by:

soybean } small grain, legume sod,
corn } legume sod

soybean } small grain, legume sod,
corn } wheat, legume sod

If such schemes enjoyed wide usage on these intermediate soils, the soybean would occupy less acreage on the farm than the small grain crop. Sum of soybean and corn acreages on this land class dare not exceed one-third of the rotation; otherwise productivity will suffer and yield of all crops lag.

Most of the land of this third group lying east and northeast of Columbus is made up of Ellsworth silty clay loam and Cardington silt loam; and west and north-

west, of Celina silty clay loam. The latter is by far the more extensive.

Yield Expectancy

The "par" yield to be realized on this group of soils falls short of that attainable on the "dark" ones but above that for the "grey" lands, being:

40 bu./acre.

Practices Needed:

To put and maintain the profile 3 soils in full capacity to turn out the yield of which they are potentially capable will require:

a) Terracing. Normal slope on them being about double that typical of profile 2 accentuates the problem of handling mobile water. Here field terracing becomes a necessity. Contour cropping alone or strip-cropping alone would aggravate the water problem by inviting water-logging.

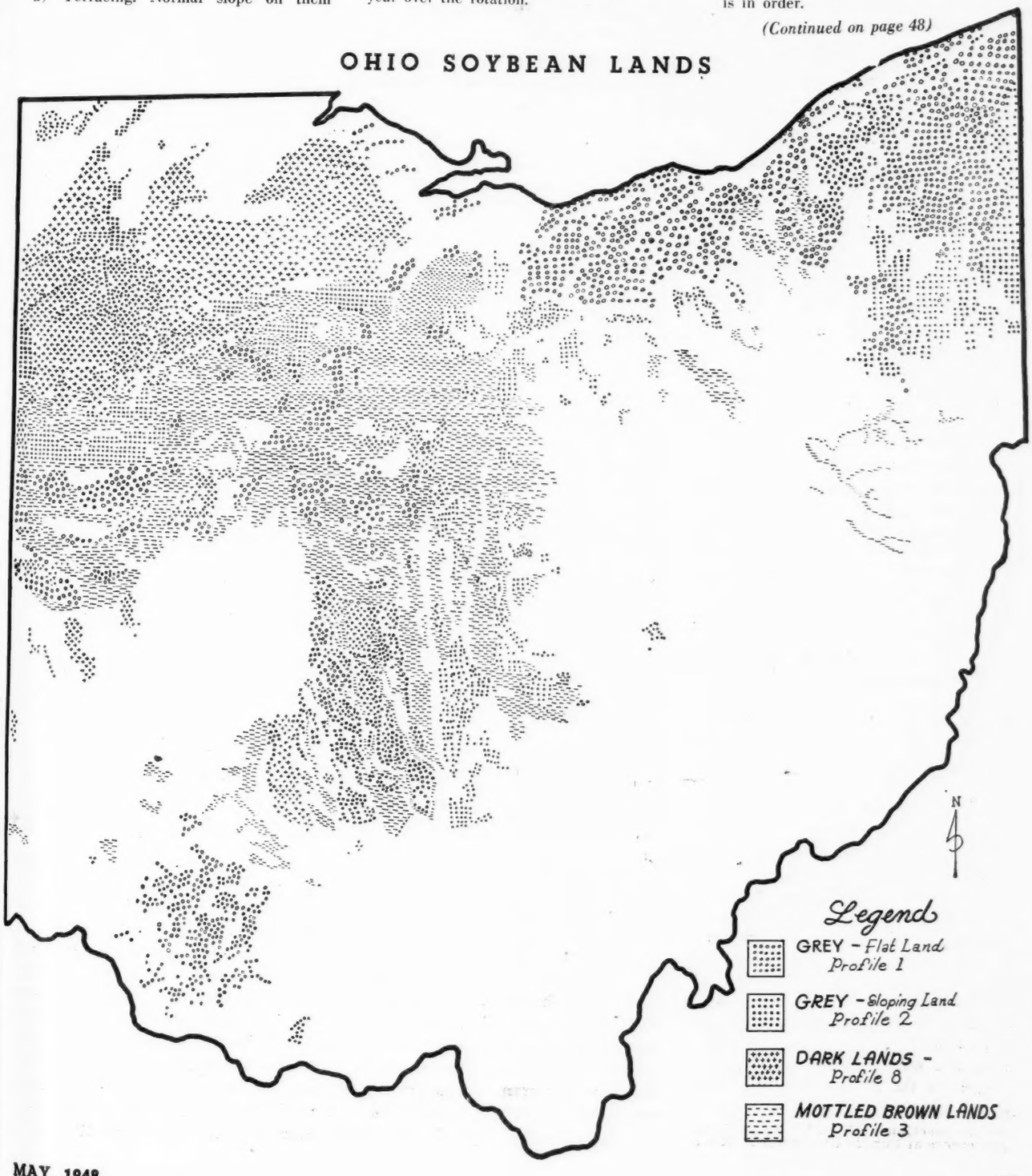
b) Liming. Soil members in eastern Ohio require a rate of liming equal to three-fourths that for the "grey" soils in the same area. About two-thirds of the western Ohio members are in need of liming and a rate of three-fourths that for profile 2 suffices.

c) Fertilizing. Their need for fertilizer nutrients is in the order of 175 lb./acre per year over the rotation.

d) Tillage. To stay downslope movement of sheet water and bring a proper fraction of the rainwater into the body of the soil calls for revamping of tillage procedure. On the one hand, there is the matter of selecting a tool to exert lifting action and secondly the requisite of so operating it as to produce a coarse, open layer above the level of seed position.

e) Planting. Of the three groups of land appropriate for soybean production, this one is the most vulnerable to erosion. For that reason drilling the crop solid, providing a continuous protective canopy against dislodgement and flotation of soil material, is in order.

(Continued on page 48)



What's Ahead FOR SOYBEANS?

Nationally and Internationally

By R. G. HOUGHTLIN

President National Soybean Processors Association

IT IS A PRIVILEGE and a genuine pleasure to appear on this program to discuss the subject "What's Ahead Nationally and Internationally for Soybeans."

Our Association and its members are very much interested in these meetings and we are happy to have an opportunity to sit in with the state and government agriculturists, growers, and others interested in the soybean industry to discuss research developments and the problems which our industry faces.

Since Mr. Stalin controls much of the foreign soybean producing areas, my talk will necessarily be concentrated on the future of our domestic enterprise. In forecasting the future of our domestic industry, I think it is best to start with the production of the crop itself.

You are all familiar with the giant strides which we have made in soybean production, and I will not take up any time in quoting statistics on that matter.

It would seem to me that we have an extremely important educational job to do for the growers of soybeans. Some progress has been made but certainly the average soybean grower has not received all of the available information concerning the proper cultural practices to be followed in the growing of soybeans. There are also many research projects now under way to give us the answers to some of the questions which have been raised concerning the crop and it will be important to see that the grower is kept informed on all developments. We are hopeful that through our permanent soybean crop improvement program we will be able to expand the information services now available to the individual growers.

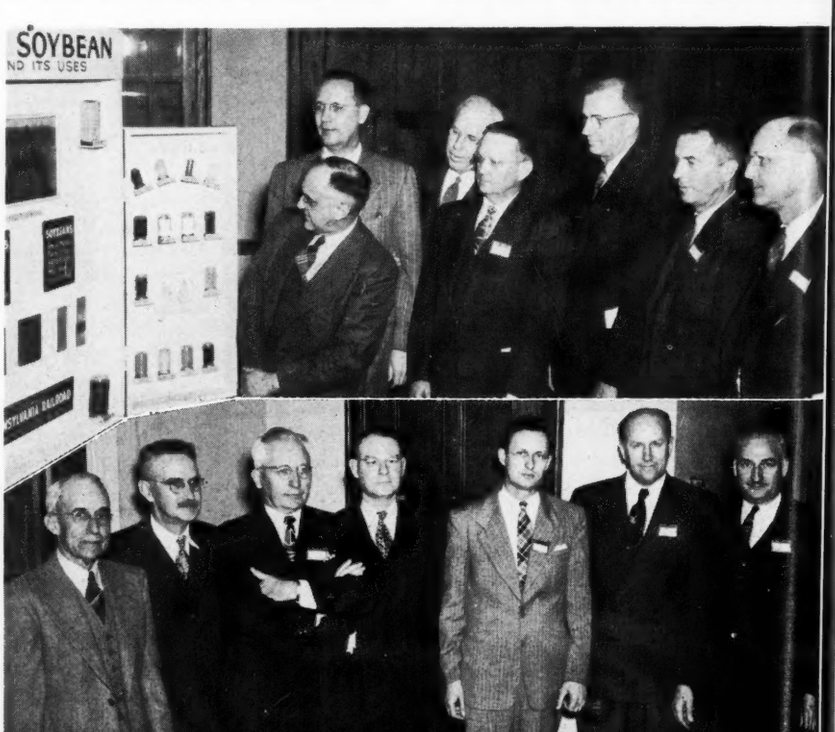
Determination of the best varieties for the different types of soils and the different sections of the country is an extremely important project. The breeding work which has been in operation for a number of years has made a marvelous record in increased yields. Of necessity, however, that program has been limited to a large extent to the primary soybean producing areas. Since it takes 8 to 10 years to develop and make available new varieties, progress in the fringe sections and new sections of the belt is just now beginning to take shape. In the next few years I think we will find considerably larger yields reported from the outlying districts as well as more desirable production in what we now term the soybelt.

Improved varieties will not of themselves account for the improvement in yields which we all anticipate. Improvement in weed control, better rotations, better cultural practices will all be necessary.

I was very much interested in the goals which Mr. John Slipher discussed at the recent Ohio meeting. To some of us, his forecast appeared rather optimistic but if one considers the returns which have been obtained in the soybean yield contests in the state of Indiana, I, for one, believe that those goals can be and will be attained.

I think we should also give considerable consideration to the newer sections of the soybean producing area. The southeast Missouri, Arkansas, Mississippi, Kentucky, Tennessee areas are becoming more important and as new well-adapted varieties and better cultural practices are followed in those sections, we may expect a considerable increase in our soybean crop. Increased activity in the Carolina, Virginia, Georgia area also holds promise.

It is also conceivable that products may be developed which will do a better job of controlling weeds in solid drilled fields. The statement was made in Iowa that where weed control could be obtained, solid drill-



Two groups at the processor meetings at Purdue University March 31. At top, left to right: Ersel Walley, president, American Soybean Association, Fort Wayne, Ind.; Robert Houghtlin, president National Soybean Processors Association, Chicago; W. L. Burlison, chief in agronomy, University of Illinois; Ward Calland, director of agronomic research, Central Soya Co., Decatur, Ind.; C. W. Carrick, assistant chief, poultry department, Purdue; D. W. Chamberlain, soybean pathologist, U. S. Regional Soybean Laboratory, Urbana, Ill.; and K. E. Beeson, extension agronomist, Purdue. Bottom, left to right: Professor Claude Vestal, animal husbandry department, Purdue; R. R. Mulvey, agronomy department, Purdue; Sam Hollett, manager, Swift and Co., Frankfort, Ind.; F. A. Frank, agronomy department, Purdue; A. H. Probst, agronomy department, Purdue; Henry Barre, chief in agricultural engineering, Purdue; N. J. Volk, associate director of Purdue Agricultural Experiment Station.

Before meeting of Illinois and Indiana processors at Purdue University Mar. 31.

ed fields probably would out-yield row planting.

As concerns soybean production then, it would appear that increased yield per acre and expansion of the soybean producing area might well account for a continued heavy production or an expanded domestic production of soybeans.

The economic side of the soybean picture cannot be overlooked in making any forecasts of future production. Certainly we must have a market for the soybean and the products from its processing in order to maintain present or increased production. As was so ably stated by Ersel Walley and W. G. Weigle at Ohio, price is and will be a real incentive for soybean production.

The primary products of soybean processing at the present time are oil and meal. Soy flour for edible use is also an important product and, as our domestic and foreign markets expand, it will have a more important bearing on the price which the processor can afford to pay for soybeans.

R. G. HOUGHTLIN

Soybean oil meal provides better than 40 percent of the available protein meals for livestock and poultry feeding. It is the most versatile protein meal and is a valuable feeding ingredient. It is not complete in itself but when properly supplemented will perform extremely well in livestock and poultry rations. Optimum nutritional balance between protein and carbohydrate feeds never has been achieved in practice in this country. In fact, many authorities have stated that if optimum feeding were attained, the present protein meal supplies would have to be doubled in order to meet requirements.

During the war great strides were made in educating the feeder on the value of proper protein supplement feeding. We still have a long way to go, however, before the average feeder realizes the importance and the true value of a balanced feeding program. This is an educational job, and our processors and the feed manufacturers, as well as state and government experiment stations, are contributing to this education. As feeding practices improve, the market for soybean oil meal will broaden and anticipated surpluses of meal will disappear. Incidentally, many soybean growers do not realize the true value of soybean oil meal and since soybean oil meal prices are a definite factor in determining the price the processor can pay for soybeans, we must do a better job of education among our growers.

Fertilizer, glue, plastics, isolated proteins, and other outlets supply ready markets for our meal production. Present research programs are concentrated on increasing the adaptability of those products and improving the quality of both the meal and the specialty products so that their value will be raised and their usage expanded.

Soy Flour Markets

The primary markets for soy flour at the present time are in bakery goods, meat products, breakfast foods, confectionary, and a number of other products. As we learn more about the properties of soy flour and their functional use in the edible field, our markets will broaden. Incidentally, soy flour is also used in large quantities in pet foods, paper sizing and other so-called inedible fields.

Soybean oil now provides the largest single source of vegetable oils in this country.

The primary uses of soybean oil at the present time are found in edible fields. Shortening, margarine, mayonnaise and salad oils provide the principal outlets. Intense research activity is now under way toward the complete solution of the flavor stability problem and as soon as that problem is whipped, we may expect higher prices for soybean oil as compared with its principal competitor, cottonseed oil. Vast improvements have been and are being made in the quality of soybean oil, and we are hopeful in the very near future the question of flavor stability will no longer stand in the path of greater expansion in the edible field.

During the war shortage of edible fats made it necessary for the government to seriously control the use of soybean oil in inedible products. Since the termination of the emergency, however, giant strides have been made in the better utilization of soybean oil in those fields.

Soybean oil, in combination with tung oil and other quick-drying oils, has established its position in the paint field. The development of alkyd resins from soybean oil is also extremely important, and we may expect considerable expansion in the industrial oil fields.

It is interesting to note that one of the newer products appearing on the market today is a combination of soybean oil and styrene. Styrene is obtained from petroleum products and is used extensively in the production of synthetic rubber. As crude rubber supplies became available following the war, the government released some of this material for other uses. Its combination with soybean oil produces a very high quality paint ingredient.

Tremendous strides have also been made in the fractionation of soybean oil. It is logical to expect that as new processess are developed and present ones perfected, it will be profitable and economical to fractionate soybean oil, obtaining end products that utilize the best edible and inedible features of soybean oil.

Another soybean product that is receiving considerable attention today is lecithin. The market for this product has been established and as our research departments learn more about the uses of the products we may expect considerable progress in the marketing of this relatively new product.

Several other new products, such as protein fibers, soybean adhesives, whipping agents, foaming agents, and others, will help to broaden the soybean base and provide a more stable market for soybeans.

When we return to free marketing it will be necessary to consider the foreign markets for both soybeans and soybean products. The largest foreign sources of oilseeds and protein meals may never get back to their prewar export basis. Manchuria and India, many believe, will never export in the quantities which they did prewar. This should provide an increased export market for soybeans, soybean oil meal, soybean oil and other soybean products.

Other Oilseeds

The competition of other oilseeds in our domestic market should not be overlooked. It seems pretty clear, however, that cottonseed production has been and will remain rather stable and that flaxseed production cannot be increased to a large extent over present production. The soybean must provide for the increased needs of fats and oils, protein meals and similar products.

In conclusion, I believe that the future of soybeans for domestic production is very favorable. Increased production per acre planted to soybeans and expansion of the soybean belt should provide a large production of soybeans. Improvement in the quality of our present soybean products should safeguard and expand our present markets. Further development may be expected in the newer product fields with a consequent broadening of our soybean base.

SOYBEAN OIL MEAL--EFFICIENT AND ECONOMICAL INGREDIENT IN *Modern Poultry Feeds*

By J. E. HUNTER

Member, Soybean Research Council

SOYBEAN oil meal certainly has earned its place in the sun as an ingredient in poultry feeds during the last two decades. Fifteen years ago soybean oil meal was not widely used in poultry feeds. Today a poultry feed is rare that does not include soybean oil meal in its makeup. What has brought about this change? There are a number of factors, some of which are as follows:

1. High nutritive value of soybean oil meal. It is a complete protein and contains all of the known essential amino acids.

2. It is an economical protein carrier when compared with other protein sources.

3. It is available in large quantities.

4. It has been standardized.

5. Nutritional scientists have learned best ways and means of using soybean oil meal in poultry feeds to produce maximum efficiency at lowest cost.

A few years ago poultrymen who also raised soybeans on their own farms often asked themselves the following question: Since I produce soybeans on my own farm and since soybeans supply high quality protein why can't I feed my poultry the soybeans that I raise? In many instances the feeding of soybeans to poultry was tried and the results were not satisfactory. Failure to obtain good results was due to the fact that unprocessed soybeans contain more oil or fat than can be used effectively by poultry and also because of the fact that soybean protein for best results must be submitted to critically controlled heat treatment.

Raw Beans

Poultry farmers soon convinced themselves that the feeding of raw soybeans was not a good practice and that where soybeans were available it was better to sell them for conversion into soybean oil and soybean oil meal and to use feeds containing the soybean oil meal.

Experiment stations as well as soybean processors have studied extensively the degree of heat treatment necessary during processing to produce soybean oil meal with the highest nutritional value. Adoption of approved processing procedures for soybean oil meal has been of great importance to the industry. Also the farmer who uses feeds containing soybean oil meal has realized increased returns.

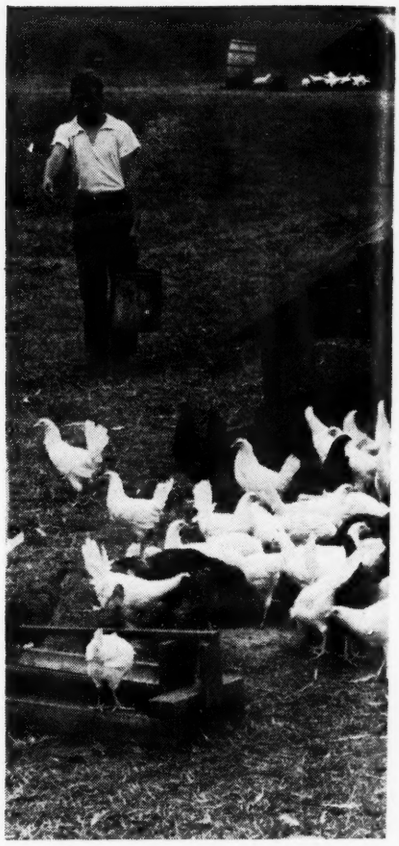
During the last two decades the nutritional requirements of poultry have received much study by hundreds of tireless, well qualified and well equipped research workers in state laboratories, federal laboratories and laboratories operated by feed manufacturers and their suppliers.

These research workers have tackled the problem of establishing the food requirements of poultry and they have done a magnificent job. The work is not as yet complete but there is available for general use today a great wealth of material on the nutritive requirements of poultry. This information on nutritive requirements in the hands of a skillful formulator of feed, coupled with a sound knowledge of the composition of ingredients available for use in feeds, makes it possible to compound feeds for the poultry raiser that will produce maximum results in growth, egg production and hatchability without nutritional waste. Maximum results without nutritional waste mean an economical feeding program for the farmer. Widespread use of soybean oil meal has been a most valuable asset in accomplishing this task.

Our nation has become more and more efficient in profitable poultry production. Growth, livability, egg production and hatchability are higher than ever before and soybean oil meal has played a most important part in this accomplishment.

Space in this short article does not permit a discussion of the hundreds of fine researches reported on the use of soybean oil meal in poultry feeds. These studies have been conducted by workers in our experiment stations, both state and federal, as well as work conducted in the research laboratories of feed manufacturers and soybean processors.

Brant and Carver reported an interesting piece of research in *Poultry Science*, vol. XXVI, No. 6, Nov. 1947, page 598. In this study soybean oil meal was fed as the sole protein concentrate and also in combination with other protein concentrates to poultry from day old through the first laying year. The results were very interesting. Where soybean oil meal was used as the sole protein concentrate the chicks lived well and as adults produced a satisfactory number of eggs. They did not, however, do as well as



Today poultry rations without soybean oil meal are rare.

other groups in the series that received some other protein sources along with soybean oil meal.

These results were to be expected, because while soybean oil meal is a wonderful protein source it cannot be expected to work miracles. Soybean oil meal is not considered a rich vitamin source and it works best when used in poultry rations that are compounded in such a way as to supply all known required nutritional essentials.

When Brant and Carver included some fish meal or meat scraps in the ration, better results were secured than when the soybean oil meal was used alone. These results were very much to be expected because it is a well known fact that soybean oil meal for best results must be accompanied by a source of the animal protein factor, a relatively new vitamin found in animal and fish protein products. Because poultry needs the animal protein factor, poultry feeds containing soybean oil meal function better when some animal or marine products are included.

The discovery of the function of the animal protein factor has done much to clarify the nutritional requirements of poultry. Before the discovery of this vitamin factor it was believed that animal and marine products should be supplied along with soybean oil meal to furnish a full compliment of necessary amino acids which are the simpler substances that constitute protein. There are

about 20 of these amino acids, about half of which are indispensable—that is they are needed to sustain life.

Research workers have known for a long time that good soybean oil meal contains some of all of these indispensable amino acids. But they were baffled by the fact that poultry feeds relying mainly on soybean oil meal for protein were improved by small addition of animal and marine protein concentrates even though these concentrates upon analysis did not substantially change the amino acid makeup of the entire feed.

The discovery of the function of the animal protein factor did much to clear up this matter. It then became evident that the animal and marine products were contributing a vitamin which made soybean oil meal function more efficiently instead of improvement being entirely due to amino acids.

Not Perfect

Because of much publicity that has been given soybean oil meal some poultrymen have been led to believe that if soybean oil meal were included in the list of ingredients of their poultry feed they would have a perfect feed. This is not true. Soybean oil meal is a wonderful source of high quality protein but, as stated above, is not a rich vitamin source and neither is it a sufficient source of all of the minerals required by poultry. To function efficiently and economically for the poultryman, soybean oil meal must be supplemented with the vitamins and minerals required by poultry in proper amounts as well as with a good source of carbohydrate materials for energy.

Feed manufacturers have learned from the experiment stations or from their own investigations the proper way of supplementing soybean oil meal in poultry feeds for best and most economical results.

In the work of Brant and Carver, aforementioned, where soybean oil meal was included in diets for chickens from day old through a year of egg production the investigators took the necessary steps to supply all food factors required.

When such procedures are followed soybean oil meal can be relied upon to supply high quality protein for poultry feeds on an economical basis.

J. E. HUNTER

SEES GREAT GROWTH FOR SOYS

A prediction that soybeans will not only continue to lead the nation's oilseeds industry but will expand and develop on a still broader scale during the next 20 years was made in Chicago April 29 by Whitney Eastman, president of the chemical division of General Mills.

Soybeans are currently a billion dollar industry, Eastman said in an address before the Chicago Drug and Chemical Association noon luncheon in the Drake Hotel. He said the nation is producing approximately 200 million bushels annually.

He asserted his optimism is based on the fact that the soybean and its products "fit into our agricultural and national economy better than any other oilseed crop."

"From the grower's standpoint, the soybean crop must compete in his crop rotation cycle, not only with other oilseed crops but with the feed and cereal grains," Eastman said. "Experienced soybean growers have learned that soybeans are a profitable cash crop under varied economic conditions without depending on preferential government subsidies."

"No other domestic oilseed crop offers the soybean competition in a sound economic crop rotation program except during periods of government controlled economy, when the price of some oilseed crop may be supported at an exceedingly high level—at the expense of the consumer or the American taxpayer—as in the case of flaxseed at the present time."

Asserting that the domestic linseed industry appears to be in an "extremely vulnerable position at present," Eastman said the flax industry has for many years been nurtured, subsidized and protected by "subsidies such as crop insurance, crop bonuses and high tariffs."

"The taxpayers and consumers of linseed oil products are apparently getting tired of protecting this industry at their expense," he said. "As soon as these various subsidies are removed or appreciably reduced, it is safe to predict that the acreage planted to flaxseed will decline precipitously."

Soybeans provide two valuable and versatile products—oil and protein, Eastman continued. Soybean protein is highly important because without it we could not properly and economically feed our livestock population.

"Out of a total national production of vegetable protein concentrates produced last crop year of 7,235,400 tons, soybean oil meal accounted for 4,085,400 tons, with cottonseed meal a poor second at 1,427,100 tons," Eastman said.

"The industry also produced 133,000 tons of edible soy flour and nearly 9,000 tons of industrial soybean protein used for adhesives, paper coatings, plywood glue and so forth."

The past crop year also saw production of 25,500 tank cars of soybean oil compared to 16,200 tank cars of cottonseed oil.

"No other vegetable oil produced in this country in commercial quantities has such a widely diversified list of uses," Eastman said.

"Soybean oil provides a source of both saturated and unsaturated fatty acids and this organic arrangement places the oil in the class of so-called semi-drying oils. The properties of soybean oil imparted to it by its predominating groups of fatty acids place the oil in both the edible and technical groups of vegetable oils.

"As an edible oil it is used interchangeably with and as a companion product of cottonseed and peanut oil. When the taste stability problem has been solved—and we are making substantial progress in this direction—then soybean oil will provide some very real competition for the higher priced cotton and peanut oils.

"In the technical field soybean oil has a variety of uses. It is used most extensively at present in the formulation of alkyd resins—either as a glyceride or as mixed or fractionated fatty acids. During the last crop year approximately 3,000 tank cars of soybean oil were used in the technical field, and this usage is expanding rapidly."

Eastman predicted that linseed oil—the old standby as the principal vehicle for paints and varnishes for the past 100 years—"is going to receive a severe jolt."

Using new processing tools, industry can remove various fractions or imperfections from soybean oil and produce so-called tailor-made oils for individual needs.

"If all the economic factors are properly evaluated," Eastman continued, "it probably will be a lot better for the American taxpayer and the consumer if we grow more soybeans and less flaxseed in the future and provide vehicles for our protecting coating industries from the chemical derivatives of soybean oil."

Eastman also touched briefly on cottonseed and peanut oils in the national economy. He said that peanuts rank higher as a future rival oilseed crop to soybeans than either flax or cotton. With new technological advances, he said, it may not be too many years before peanuts will be grown as an oilseed crop without government subsidy.

"It seems evident—in fact almost conclusive—that the soybean industry is destined to remain our major oilseed industry in the United States," Eastman said. He urged development of a long-range program giving the crop a rightful place in our agricultural and national economy.

The Changing Character of
SHORTENING PRODUCTS

By A. B. PAUL
Excerpts from an article in
Illinois Farm Economics.

Shortenings have become the major outlet for soybean oil, using about 50 percent of the 1943-46 production. Farmers are therefore concerned with changes in shortening products as well as with the impact of such changes on the market for lard.

Shortenings in Relation to Lard

1. *Improvements in shortening products*[1] The character of shortenings has changed considerably in the past 70 years. Late in the last century, cottonseed oil was commonly incorporated in lard as an extender. An attempted corner of the Chicago lard market in June 1883 was reported to have been broken by such use of cottonseed oil and other fats.

Later, cottonseed oil was solidified with hard oils to make a product that was offered to the public as a lard substitute. Today, such compounds are usually much improved over the earlier product by better refining, deodorizing, and, sometimes, partial hydrogenation of the oil ingredients. About one-half of the compound production is thought to be used in households. The remainder is used by commercial establishments (restaurants, hotels, doughnut fryers, and some commercial bakers), whose class of trade does not justify the use of the more expensive all-hydrogenated shortenings.

The most distinctive changes in shortenings resulted from the more recent method of hardening vegetable oils (saturation with hydrogen). These all-hydrogenated shortenings are a higher class of products than compounds or lard. They are more thoroughly refined and deodorized, are more uniform, and have many times the stability of the other shortening agents. Their behavior in baked goods is more satisfactory with respect to the dispersion of the fat throughout the product, ability to incorporate air, and stability of the fat after baking. It is believed that hydrogenated shortenings formed one-third of the retail shortening sales in 1919; two-thirds in recent years.

Two special types of all-hydrogenated shortenings are manufactured for commercial users. The biscuit and cracker type is given even greater stability than the general purpose type in order that biscuits and crackers can retain their freshness for longer periods. A superglycerinated type was developed in the thirties for use in baked goods that have relatively high sugar contents (e.g. cakes). The special problem of securing adequate dispersion of the fat in the presence of the sugar is met by the superior emulsification properties of these shortenings. It is believed that superglycerinated types form about one-quarter or more of the production of all-hydrogenated types. They usually sell for more than the general purpose types and their manufacture and use are covered by patents.

In recent years, about one-half of the shortening production was made up of the all-hydrogenated types, and about one-half was made up of the compound types. In the latter group, the all-vegetable compounds predominated.

On the whole the character of lard products has not changed as much as shortenings. Prime steam lard usually consists of a blend of lards from different portions of the carcass. These may then be clarified, bleached and stiffened with leaf lard, lard stearine, or by partial hydrogenation.

Although lard is generally superior to shortenings in ability to lubricate the structure of baked goods, it usually is inferior in the other properties outlined above. However, some manufacturers have developed a lard product that is similar in its characteristics to the better quality shortenings. This is a relatively recent development which involves more extensive processing (and may involve important patents). A concerted effort by the packing industry to improve the general character of lard products has been underway for several years. If these efforts are successful the competitive position of lard will improve.

2. *Consumers' reactions to shortening and lard.* The changing character of shortenings, and sales efforts in their behalf, were ultimately responsible for (a) an increase in the price of shortenings relative to lard, and (b) a decrease in the substitution of these two classes of products for each other.

(a) The annual wholesale price of compounds averaged slightly less than the price of lard in 1916-29, but about 25 percent higher than lard in 1935-41. Commercial bakers paid a 4 percent higher price per pound for shortenings than for lard in 1929 but 27 percent higher in 1939. And over the same period they increased their consumption of shortenings by 59 percent compared with 12 percent for lard. The retail price of shortenings averaged about 10 percent above that of lard in 1919-29; and 80 percent above it in 1935-41.

(b) Consumers were about one-half as sensitive to changes in the relative prices of shortenings and lard in 1935-41 as they were in 1916-29. A small change in the relative prices of the two products in 1935-41 was associated with about one-half as much increase in the consumption of the cheaper product as in 1916-29. In 1919-29, a 1 percent rise in the price of shortenings relative to lard was associated with a decline of 2.4

TABLE 2. PRODUCTS OF SHORTENING PLANTS, 1929 and 1939

Year	No. of plants	Percentage composition of output Shortenings	Salad and cooking oils	Other products	Percentage of U.S. production Shortenings	Salad and cooking-oils
1929	40	63.5	27.5	9.0	67.0	84.0
1939	56	59.0	32.0	9.0	86.0	85.0

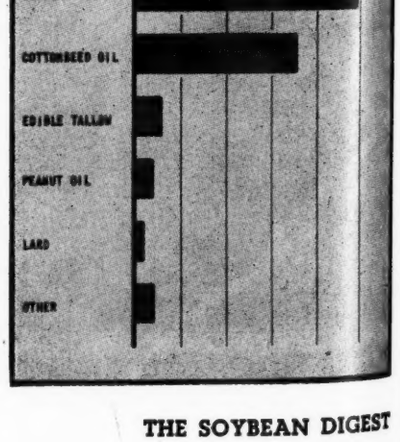
Census of Manufactures.

TABLE 3. VALUE OF PRODUCTS, COSTS AND MARGINS OF SHORTENING PLANTS, 1929 AND 1939

	1929 (millions)	1939 (millions)
Value of products	$154.55	$186.25
Cost of materials and containers	137.61	152.24
Cost of materials	114.07	
(Cost of vegetable oils)	(112.48)	
Value added by manufacture (including fuel and purchased electrical energy)	16.94	34.01
Value added per dollar of product	11.0 cents	18.3 cents
Value added per pound of oil consumed	1.42 cents	1.90 cents

Census of Manufactures.

U. S. PRODUCTION OF SHORTENING
Millions of Pounds
—Bureau of the Census



Millions of pounds.
Bureau of the Census.

to 3.4 percent in the amount of shortenings consumed (relative to lard) while in 1935-41 the decrease was only 1.1 to 1.2 percent.

Or to put the matter another way, when lard prices fall, consumers are not as easily attracted away from shortenings as formerly and lard prices must fall still further (relative to shortenings) to clear the lard supplies. An illustration of this phenomenon appears to be the sharp decrease in wholesale lard prices in May-August 1947 from their January-April level, when domestic lard supplies became abundant. Wholesale lard prices decreased 39 percent at Chicago; lard compound prices decreased only 14 percent. Hydrogenated shortenings at New York decreased 18 percent. In former years, lard prices probably would not have been depressed as much under similar supply conditions.

Significance of the Results for Soybeans

Consumers prefer certain functional characteristics (stability, carry-through, creaming quality, etc.) and certain nonfunctional characteristics (e.g., color, texture, and perhaps odor, consistency and taste) in modern shortenings for which they pay premiums. These preferences form the basis for manufacturers' sales appeals. Thus an improved product has brought a wider demand for shortenings and, in recent years, a broader outlet for soybean oil.

[1]Based in part on Bailey, A. E., Industrial Oil and Fat Products, 1945.

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MPF USE SPREADS

Over 10 million meals of Multi-Purpose Food have been shipped to the hungry in this country and abroad, reports Meals for Millions Foundation, Inc., 648 S. Broadway, Los Angeles 14, Calif., which is in charge of distribution.

This low-cost food constitutes a completely balanced meal at the cost of 3 cents, and contains a large proportion of soy flour. Distribution is worldwide, and has included, according to the Foundation, "The Arctic to the Congo, from the bombed-out East End of London to fareastern Korea, from the Navaho hogans of New Mexico and Arizona to the villages of India.

"A boxcar of a half-million meals of MPF rode the Friendship Train to Italy and France; 100,000 meals sailed on the California "mercy ship," the Golden Bear, to the Mediterranean; a truckload of 60,000 meals accompanied the Navaho trails relief caravan—airplanes have carried MPF to hungry Eskimos in Alaska—dropped MPF in inaccessible areas on the Navajo and Hopi Indian reservations."

The Foundation is soliciting contributions to this worthwhile cause for relief of human suffering. Such contributions are especially appropriate coming from soybean people. They may be forwarded to the above address.

Dedicate Central Soya Co. Plant

Tom Allwein, Gibson City plant manager of Central Soya Co., Inc., points out features of the 4-million-dollar expansion to (left to right) R. H. Fletcher, president; D. W. McMillen, Jr., vice chairman of the board and D. W. McMillen, Sr., chairman of the board.

Completion of a 4-million-dollar expansion program in the erection of a soybean oil solvent extraction plant and allied facilities was announced in Gibson City, Ill., with the dedication of the new plant of Central Soya Co., Inc., of Fort Wayne, Ind., April 14.

Officials of the company were hosts to editors of the trade publications and newspapers of the area at a press showing of the enlarged plant.

With the new solvent unit in operation, the Gibson City plant's processing capacity has been increased to 25,000 bushels per day, over 8-million bushels a year. This represents the annual production of some 430,000 acres of Illinois farmlands.

The new addition was started in January, 1947. It included 20 silos with capacity of 1-million bushels; a work and drier building, a Link Belt automatic car unloader which easily up-ends a box car for unloading in six minutes, additional bulk liquid storage and the complete new solvent extraction plant.

The new Gibson City plant represents the latest developments in the solvent technique gained by the company in 10 years of operation of the Indiana plant and makes the local plant one of the finest and most modern in existence.

In dedicating the new plant, D. W. McMillen, chairman of Central Soya's board, stated:

"It was apparent from early in our experience here in Illinois, that we had located our plant in Gibson City wisely.

"In the heart of the greatest soybean producing state in the country, it is ideally located for access to the soybeans of the surrounding farms and in an equally fine market for our Master Mix feeds."

S-100--NEW COTTON BELT BEAN

By BART McDOWELL

"IT'S A TOP-NOTCH yielder." That's what they're saying about a new, medium-late soybean developed by the University of Missouri. It's called S-100.

This new soybean is a Southern bean that takes about 135 days to mature, putting it later than Northern varieties like Lincoln, Boone, and Chief, and about 10 days earlier than Arksoy, Ralsoy, and Ogden. From experiments, its region of adaptation will be the northern rim of the Cottonbelt southward. It will be best in southeast Kansas, east Oklahoma, north Arkansas, north Mississippi, Missouri's Delta country, and parts of Tennessee.

Right now growers of S-100 are strictly supervised by the Missouri Seed Improvement Association. A few farmers okayed by the association down in Missouri's southeastern boot-heel will be growing the new bean this year. C. A. Helm, professor of field crops at the University of Missouri and secretary of the association, thinks it won't be long before S-100 will take its place as the top soybean in its region. It fits the northern Cottonbelt like a glove.

Farmers there can plan better labor distribution for planting in the spring and harvesting in the fall. They'll be able to use the new bean with other varieties to spread the combine season and avoid shattering. They'll even be able to harvest the seed in normal seasons in time to get in a crop of small grain.

Other features of the new soybean are good lodging resistance and high yield. It has a white flower, and a yellow bean with a brown hilum or seed scar. The pubescence, or hairiness on the stem, is gray. And it holds its beans. Farmers in southeast Missouri vouch for its lodging resistance, saying it held its beans last year until after Christmas.

The late B. M. King, professor of field crops at Missouri, developed this new soybean. He tested and selected plants for a dozen years before coming up with S-100. The original plant from which S-100 was taken was from a field of Illini soybeans. It was probably a natural cross. Since soybeans, like oats, are self-pollinated, natural crosses occur only in about one plant out of 3,000. This is the same way that Lincoln, the Cornbelt soybean, was started.

It was in 1945 that Mr. King finally chose the selection now known as S-100. The following year he increased two bushels of seed to 60. The 1947 harvest was about 1,200 bushels. And of course, the seed is being increased by individual farmers now.

Tests of S-100 have been made all over the Midwest and South. Although the new bean ranked along with Patoka and Gibson in average yield in Indiana and Illinois, it usually wouldn't be recommended that far north.

In its own country, S-100 showed up ahead of all other varieties. All over the South it led Patoka and Gibson. Farther west in Coweta, Okla., the new bean yielded 3½ bushels more than Gibson and 4 bushels more than Patoka.

In the upper central South, S-100 again ranked tops. Stations in Crossville, Knoxville, and Jackson, Tenn., and in Orange and Blacksburg, Va., all reported S-100 as the number one yielder. The average for all stations showed S-100 yielding 2 bushels more than Patoka and 3 more than Gibson.

In the Delta country, the best region for S-100, the story was better yet. Again S-100 showed its heels to earlier soybeans in every station. It averaged 4 bushels more than Patoka and 5 bushels more than Gibson—this record, in spite of tests in Louisiana, which is farther south than specialists recommend.

Top Yielder

Agronomists at Stoneville, Miss., compared S-100 with 23 strains, mostly later-maturing types. They found that it outyielded the average of all the others by 15.9 bushels per acre—about 47 percent better. It was a full 7 bushels ahead of Ogden, the latest maturing soybean that they tested.

All these tests show that this new soybean is the top yielder in western and Delta sections of the South. Although the oil content is a little lower than other varieties—about 1 percent less than Patoka—S-100 will give the farmer a greater oil yield per acre. The seed quality is high. As far as lodging goes, in average fertile soils, without much moisture, like places in Oklahoma, almost all plants stood erect. In fertile soils with more moisture where plants grew rank, S-100 stood up at least as well as other varieties.

Down in Sikeston, Mo., which is typical of the new bean's best country, tests were made to determine the best dates for planting. Like Boone, S-100 should be planted there about the first of June. If the new bean and Ralsoy are planted before that time, Ralsoy shows up a little better. But S-100 planted after June 1 comes out on top. It matures a few days earlier and yields more seed at about the same quality.

To the farmers in the northern part of the Cottonbelt, the development of S-100 means better planning and labor distribution. The farmer can start about the middle of May by planting Arksoy or Ralsoy. Then he can put in his S-100. His cotton picking season will be heaviest during the last of September. When he is over the hump with cotton picking, his S-100 will be about ready for the combine, roughly the first week of October. As soon as his S-100 is off, he can put in, say, winter wheat. Then he can use his combine on the Ralsoy. By spreading out his combine season he'll be reducing the shattering period, since it costs him money to let the beans stand too long after ripening.

During 1948 and 1949 the Missouri Seed Improvement Association will keep a close check on the growers of S-100. Not until next year will seed be unrestricted. About 200 bushels of seed have been sent to other states cooperating in the regional tests. Tennessee, Virginia, Mississippi, and Arkansas, will get seed to increase for their areas. It won't be long, Mr. Helm believes, before S-100 will be helping out a lot of farmers all over the South.

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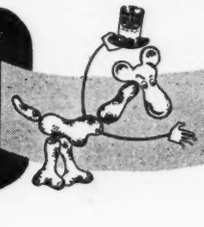

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WEED CONTROL IN SOYBEANS

By R. S. DUNHAM

Division of Agronomy and Plant Genetics, University of Minnesota. Summary of talk before Minnesota Soybean Institute.

There has been very little work done on weed control in soybeans. What investigations have been made have been cultural trials since neither 2, 4-D nor the dinitros can be used safely on this crop. Pre-emergence spraying may be a solution but insufficient trials have been made at present to determine its possibilities.

Cultivating between the rows and the use of weeder, harrow, and rotary hoe are practical methods already a part of soybean farming.

Other methods depend on the preparation of a clean surface layer for the beans in a preceding crop. Corn land that has been kept clean by cultivation, the flame cultivator, and chemical spraying will furnish such a layer. If the soil is disked instead of plowed, this layer should remain largely free from annual weeds for soybeans. Flax on such land has yielded 5 bushels more and contained 1,000 pounds less weeds per acre than on corn land given only normal cultivation.

If grain stubble is plowed shallow or thoroughly disked immediately after harvest, and is kept harrowed and disked at intervals during the fall, many weed seeds will be stimulated to germinate providing also there is sufficient moisture. Annual weeds will be killed by frost and if the land is not plowed for soybeans, weeds should be materially reduced.

Perennial weeds such as thistles can be effectively set back by a fall plowing followed by cultivation every 3 or 4 weeks the following spring. Soybeans planted in 6-inch drills the latter part of June, reduce the number of thistles and greatly reduce the vigor of those remaining. Early varieties could be expected to make a crop even sown at this time.

• Papers on this and page 24 are condensed from talks given at the Minnesota Soybean Institute and apply to Minnesota conditions.

—s b d—

SUCCESSFUL SOYBEAN CULTURAL PRACTICES

By R. E. HODGSON

Supt., Southeast Experiment Station, Waseca, Minn., in talk before Minnesota Soybean Institute.

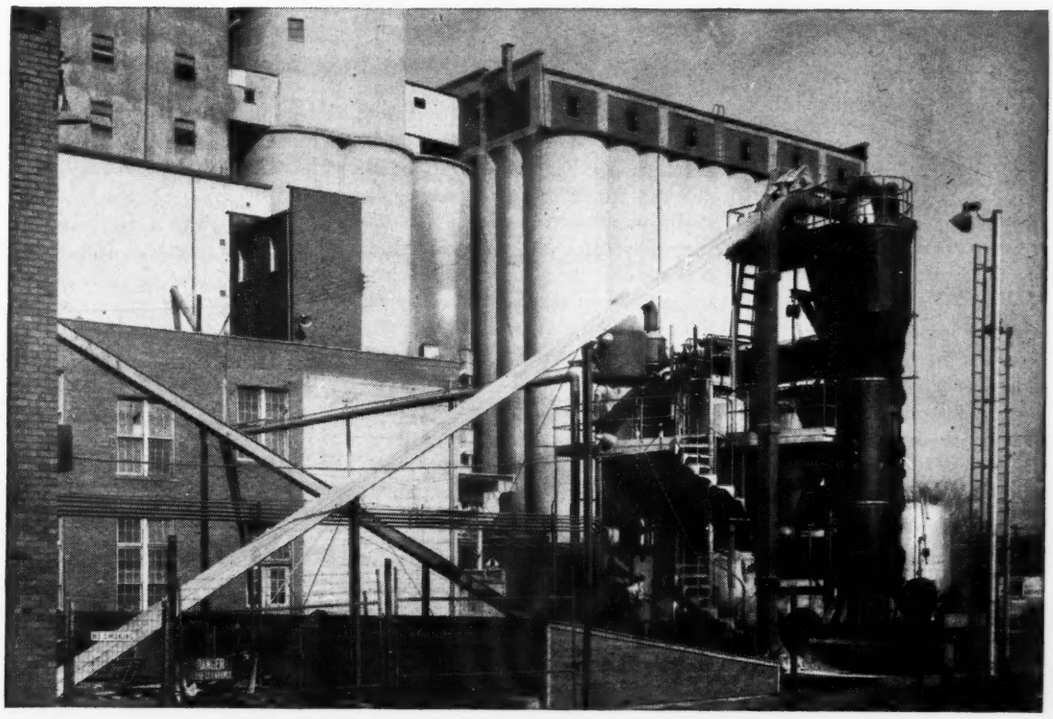
The ideal way to plant soybeans is in 6-inch rows with a grain drill. The objection to this method is that there is little control of weeds and every weed cuts the possible yield. We have found that planting in 24-inch rows with a beet planter allows cultivation and yet permits heavier seeding and quicker ground cover than corn planter rows.

Our experiments indicate that the heavier the seeding, the higher the yield. We have planted 450 pounds per acre (seeded solid) with yields of 45 bushels. As a compromise, we try to plant 120 pounds per acre in 24-inch rows. Harrow, weeder or rotary hoe can be used on beans seeded solid or in rows after true leaves come out, if the land is dry.

We have found little advantage in extra early planting. Growth is slow and weeds get ahead of the beans. We like to use an early variety and plant when the ground is warm. This permits cheaper cultivation to kill weeds and insures quick germination and rapid ground cover. We like to prepare a mellow seed bed, well pulverized.

Cultipacking after seeding aids in quick and uniform germination of both weeds and beans. Soybeans are sensitive to soil and weeds but make a crop under extremes of drouth and excessive rainfall. There is room for much study leading to better cultural practices with soybeans.

...and ANOTHER



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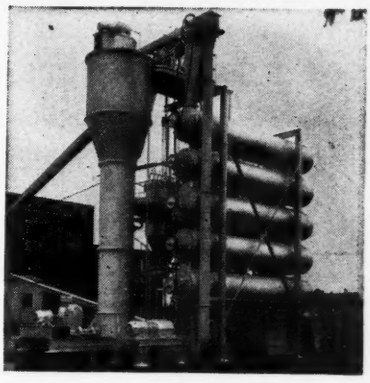

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EFFECT OF SOYS ON THE SOIL

By A. C. CALDWELL

Division of Soils, University of Minnesota, in talk before Minnesota Soybean Institute.

The effect of soybeans on the soil can be discussed under three main headings:

1. —The effect on chemical soil constituents.

2—The effect on some physical properties of the soil.

3—The effect on biological activity in the soil.

Soil Constituents

A measure of the nutrients removed by the soybean crop can be had by analyzing the seed and hay, and it is interesting to compare this analysis with that of other common field crops to determine the relative removal of essential plant foods. Such is done in the following table.

An examination of the table reveals the economy of nitrogen that is possible in growing beans, which, when handled as indicated, can induce a net increase in the nitrogen content of the soil. Corn and oats, on the other hand, are heavy nitrogen feeders. Soybeans not properly inoculated or grown on acid soils or on soils high in nitrogen will contribute nothing to the nitrogen supply, but may deplete the soil of this constituent. Soybeans take no more phosphorus from the soil than corn or oats, but require large amounts of potassium and fair amounts of calcium and magnesium. It can be seen that soybeans may remove substantial amounts of all nutrients but nitrogen.

Physical Properties

It is a common observation of those who grow soybeans that this crop loosens the soil and improves the tilth. It should have a beneficial effect on the heavier textured soils such as the clays and silty clay loam, improving their structure and porosity. Soybean roots are sturdy, go down 4 to 5 feet and may improve subsoil drainage.

Soybean ground is no more subject to erosion than other intertilled crops, though sometimes in the past the soybean has been accused as a crop that accelerated erosion. Soybeans planted in rows on the contour, and particularly planted solid may check the erosion tendencies of a soil.

Plant food elements added or removed by various crops. (1)

Crop	Acre Yield	Added N lbs.	Nutrient elements per acre removed N lbs.	P lbs.	K lbs.	Ca lbs.	Mg lbs.
Corn	40 bu.	..	40	7	8	.4	2.8
Oats	40 bu.	..	26	4.5	6.5	.8	1.6
Soybeans*	20 bu.	16	..	8	25	2.8	3

*Beans sold, straw returned.

Biological Activity

The activity of soil organisms is an important soil fertility feature, in that soil microorganisms attack organic matter and thus make nutrients more available for plant growth. The incorporation of soybean residues into the soil has been found to increase the microorganic population and to stimulate the production of nitrates in the soil. This may be part of the reason why grains and corn do well very often after soybeans.

Recommendations

It has been found that soybeans will respond to the addition of lime to acid soils, and this is a practice that should not be neglected. Liming plus inoculation helps assure a nitrogen supply in the plant, in that nitrogen fixation by the nodule organism is enhanced.

Except in certain instances soybeans have given little response to phosphate and potash fertilization. The soybean plant has shown considerable ability in being able to forage for nutrients in the soil and to obtain enough for fair growth when many other plants would suffer.

On quite fertile soils in southern Minnesota on the Clarion-Webster (2) association, 500 pounds per acre of phosphate and potash, alone and in combination was plowed under for soybeans and the best increase obtained was only 2 bushels. On another soil, however, which happened to be very deficient in potash, an increase of 8.6 bushels of soybeans was obtained from 200 pounds of 80 percent muriate of potash plowed under in bands with the plow under attachment.

Soybeans are high potash feeders as the the table of analysis of soybeans showed, and responses from applications of potash can be expected on potash deficient fields. Potash deficiency symptoms on soybeans are quite marked and are indicated by chlorosis and firing of the leaf. Large areas of soybeans showed typical potash deficiency symptoms on the high lime (so-called alkali) spots of west central and southwestern Minnesota last year.

(1) Soybeans—their effect on soil productivity. O. H. Sears. Univ. of Ill. Ag. Exp. Sta. Bul. 456.

(2) Principal soil regions of Minnesota. P. R. McMillen. Univ. of Minn. Ag. Exp. Sta. Bul. 392.

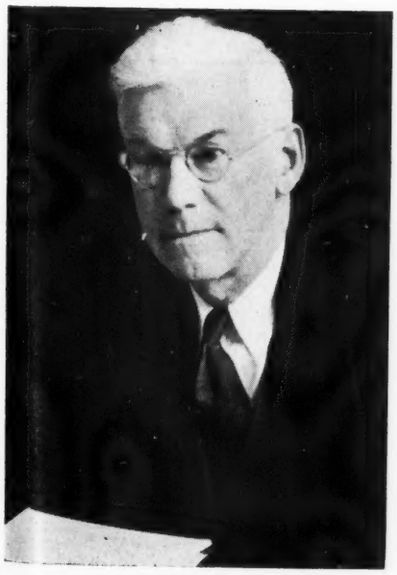
WIGGANS, A N. Y. ENTHUSIAST

Dr. R. G. Wiggans, professor of plant breeding at Cornell University and a past member of board of the American Soybean Association has maintained an interest in soybeans throughout the many years of their phenomenal growth and expansion in American agriculture.

He gives credit to "J. C." Hackleman for sparking his enthusiasm for soybeans and for giving him an idea of their crop possibilities. This was during his student days at the University of Missouri.

Wiggans' graduate work at Cornell University led to M.S. and Ph.D. degrees and an appointment to the staff of the College of Agriculture. He has been engaged in research continuously there since except for a limited period at Ohio University. His interests have included studies in the culture and adaptation of forage crops for the Northeast, corn breeding and cultural practices, and the study of problems involved in the adaptation and use of soybeans on the outskirts of the great soybean belt.

The great protein-feed-consuming and protein-deficient-producing area of New York state and the Northeast in general, led to a breeding program for the development of varieties of soybeans maturing sufficiently early for grain, and at the same time sufficiently productive to justify their use in helping to solve the protein problem of the dairymen in particular. This program resulted in the early introduction of three varieties. The stiff strawed, early maturing, small black-seeded Cayuga is still the most dependable of the many which have been run through variety and strain trials at the Cornell Experiment Station. Although grown in a limited way, soybeans for grain in the northeastern United States are still useful as a protein supplement for home grown feeds due to the development of dependable early maturing varieties.



R. G. WIGGANS

The research done on cultural practices involving the growth of corn and soybeans as companion crops for silage, has led to the introduction of the practice by many of the good dairymen of the state. The production of total dry matter is increased and silage improved by a combination of the best corns for silage in the New York area and suitable varieties of soybeans which have proved best suited for grain in the Cornbelt, but not in the Northeast.

Wiggans is also interested in varietal and strain tests of soybeans for human food, cooperating with canners and nutrition experts, and the recommendation of varieties for canning and as fresh vegetables.

In his soybean work, he has closely cooperated with W. J. Morse of the U. S. Department of Agriculture, and more recently with the U. S. Regional Soybean Laboratory, Urbana, Ill.

Pioneering work, such as that done by Wiggans and other research men continues to widen the soybean belt and broaden our knowledge of the usefulness of the crop.

Testimony Before Armed Services Committee . . .

OUR INDUSTRY ASKS NO FAVORS

"We maintain that as a matter of national defense the soybean industry deserves to operate in a free economy," said Ersel Walley, Fort Wayne, Ind., president of the American Soybean Association, in his testimony before the committee on armed services of the U. S. House of Representatives April 2.

Walley's appearance before the committee was to request repeal of restrictions on the use of margarine by the armed services. At the present time federal law prohibits the use of margarine other than for cooking purposes, except to supply an expressed preference or for use where climate or other considerations make the use of butter impracticable.

"It (the soybean industry) does not ask for favors extended to many other important contributors to the war effort," Walley said. "It only asks the right to compete in a free domestic economy. It would be ashamed to ask for discrimination which would deprive competing domestic products of the same right.

"Currently the annual per capita consumption of table spread in this country is between 15 and 16 pounds, of which butter supplies approximately two-thirds and margarine one-third. We believe that butter and margarine are complementary and both necessary. It has been agreed by eminent authorities that modern margarine, made from soybean oil, is nutritionally equal to butter in every way, shape and even in form, colored yellow as butter is colored yellow, artificially. We believe that our armed forces have demonstrated a clear-cut capability of providing our men with healthful, clean, nutritious food.

"It would be as silly to write into law a provision that the army could buy only one type of gun when you knew that the supply of that type of gun was insufficient to meet our national needs, as it would be to fail to adopt the principle in the resolutions under consideration.

"Butter production in this country is dropping year by year as more and more milk goes into fluid milk and other high value uses. Just as fast as many dairymen can meet sanitary requirements for the production of fluid milk, they quit the production of cream for butter.

"The matter you have under consideration at the moment must be judged in the light of 1948, not in the light of 10 years ago.

"The army does not ask whether the boy in uniform comes from a farm producing soybeans or from a farm producing butterfat. The boy from the soybean farm with his knowledge of mechanized agriculture is certainly not an inferior soldier in modern mechanized warfare. Can we, professing to be a free country, believing in free enterprise, dictate that the armed forces must discriminate against the production of the farm from which we take the boy whose family grows soybeans? Can we have the audacity to tell those who are responsible for feeding our men in uniform that they must get their entire supply from a source which can take care of only two-thirds of our current civilian and military needs?

"To the American Soybean Association there is only one answer and that answer is 'no.'

"In the first place it is unwise to discourage the soybean industry whose contribution to the recent war effort was that of filling a gap and had that gap not been filled, the successful prosecution of the war would have been seriously impaired. No one has been able to suggest how the gap could have been filled otherwise. That America had the soybean to fill that gap at that time of need seems almost provi-

dential. In the second place, margarine made from soybean oil, fortified with vitamins, as is all modern margarine, is not an inferior product. It does everything that butter does and there is no scientific or economic reason why margarine should be discriminated against."

The House armed services committee has reported favorably on a bill to remove the margarine ban.

Dr. Anton J. Carlson of the department of physiology of the University of Chicago, told the committee on the same day, "There is no justification whatever for laws restricting or prohibiting the use of margarine by our armed forces. I can assure you that even if margarine were used in complete replacement of butter (and these bills do not call for that,) the health of our service people would not be affected in the slightest degree. If anything, you might consider margarine even preferable since it is much more uniform in composition and, accordingly, in nutritive values."

Carlson introduced scientific testimony to indicate that margarine is the complete nutritional equal of butter in all respects.

"To me, these laws, like the other federal laws which impose taxes and restrictions on the sale of margarine, are the result of a selfish commercial interest in this country attempting to prevent free and open competition. I know of no parallel to this type of federal interference in the manufacture and sale of a good food product."

—s b d—

BURROWS APPOINTEE

Parke W. Burrows, president, Burrows Equipment Co., Evanston, Ill., announces the appointment of John P. Dick, 621 S. Grant Ave., Clinton, Ill., as the firm's representative for the state of Illinois. Prior to joining the Burrows Equipment Co., Mr. Dick was selling elevator supplies and equipment to the grain trade. He will handle the company's new automatic bagging device, as well as its regular line of grain and seed testing and handling equipment and maintenance supplies.

A Listing of Experiment Station

SOYBEAN RESEARCH

Many people often would like to know what research bearing directly on soybeans and soy products is actively under way.

Your editors have compiled the following list of research projects at the various state experiment stations for your ready reference.

We do not claim this is a complete list of such projects. However, all state experiment stations in the soybean belt have been contacted for this information in order to make it as complete as possible. The intention is to include only active projects. However, a few completed projects are included and are so noted.

Not included are the plant breeding and disease work of the U. S. Regional Soybean Laboratory except where listed as state projects, the industrial research of the Northern Regional Research Laboratory, and much research being carried on by private agencies.

Project numbers and names of leaders are given when obtainable.

Breeding

Varietal breeding. W. E. Bryan, plant breeder. R. L. Matlock, agronomist. Arizona Experiment Station, Tucson.

Comparison of early and midseason varieties, and selection within segregating populations. Department of agronomy, Nebraska Agricultural Experiment Station, Lincoln 1.

Variety trial. Oregon State Experiment Station, Corvallis.

Selection and breeding. Department of agronomy, Agricultural and Mechanical College of Texas, College Station.

T. E. Stoa, agronomist. North Dakota Agricultural Experiment Station, Fargo.

B. J. 32, S. V. Stacy and U. R. Gore. Georgia State Experiment Station, Experiment.

Variety and selection tests, project 185, C. R. Weber and M. G. Weiss. Seed increase of new or improved varieties, project 413, I. J. Johnson. Development of soybean varieties superior in agronomic characters and composition of seed by hybridization and selection, project 719, C. R. Weber and M. G. Weiss. Adaptation of new crops and crop varieties distributed by the station to the different soil and climatic conditions found in the state and increase of seed of such crops and varieties, project 847, J. L. Robinson. Farm crops subsection, Iowa State College, Ames.

Varieties of soybeans for Pennsylvania. J. B. Washko. Department of agronomy, Pennsylvania State College, State College.

Soybean testing and improvement. J. W. Lambert. Division of agronomy and plant genetics, University of Minnesota, St. Paul 1.

Testing of selections from hybrids of early maturing varieties for grain. Agricultural Experiment Station, Cornell University, Ithaca, N. Y.

Vermont Agricultural Experiment Station, Burlington.

Soybean seed production. Florida Agricultural Experiment Station branch, Milton.

Comparison of other varieties with Kingwa for hay. Virginia Agricultural Experiment Station, Morgantown.

Soybean varieties for grain and hay. Breeding. Cultural studies. Dr. J. C. Anderson and M. P. Singh. New Jersey Agricultural Experiment Station, New Brunswick.

Chemical Studies

Chemical studies of soybeans and castor beans, project 388. Oklahoma Agricultural Experiment Station, Stillwater.

Costs of Growing and Harvesting

A study of the practices and costs of growing and harvesting soybeans and the use of small-sized combines in harvesting soybeans and other crops. Illinois Experiment Station, Urbana.

Cost and price relationships in soybean production and processing, project 986, O. H. Brownlee and L. K. Arnold. Iowa Engineering Experiment Station, Ames.

Defoliation of Soybeans

Defoliation with cyanamid dust, state No. 110, E. E. Barnes. Ohio Experiment Station, Wooster.

Distance Between Rows

Agronomy department, University of Illinois, Urbana.

Diseases

Plant disease survey of Iowa, prevalence, distribution of losses, project 450, W. F. Bucholtz. Study of soybean diseases and their control, project 883, C. R. Weber. Plant pathology subsection, Iowa Agricultural Experiment Station, Ames.

Study of root rot and seedling blights, primarily those caused by *Rhizoctonia*, and testing of disease reactions of varieties. M. F. Kernkamp. University of Minnesota, University Farm, St. Paul 1.

Edible Varieties

Selection studies, agronomy department. Increase and distribution of vegetable varieties, agronomy department. Variety tests, department of horticulture. University of Illinois, Urbana.

Edible soybean production, John Gray, agronomist. Louisiana Experiment Station, Baton Rouge 3, La.

Breeding and evaluation of edible soybeans, O. B. Combs. Department of horticulture, Wisconsin College of Agriculture, Madison 6, Wis.

Fats and Oils

Antioxidants and autoxidation in fats and oils, No. 225, F. W. Quackenbush and C. R. Thompson. Department of agricultural chemistry, Purdue Agricultural Experiment Station, Lafayette, Ind.

Feeding to Cattle

Protein and mineral supplements for steers wintered on dry grass, project 440. Oklahoma Agricultural Experiment Station, Stillwater.

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Feeding to Livestock

Mineral and vitamin deficiencies of livestock rations balanced with soybean oil meal, G. Bohstedt, department of animal husbandry, College of Agriculture, Madison 6, Wis.

Influence of the method of preparation on the nutritive value of cottonseed meal and soybean meal, project 589. Deficiencies of common swine fattening rations, with special reference to high protein supplements used, project 608. Oklahoma Agricultural Experiment Station, Stillwater.

Feeding to Poultry

Value of soybean oil meal in broiler production. Animal husbandry department, University of Illinois, Urbana.

Riboflavin supplements in corn-soybean oil meal rations for poultry (in cooperation with U. S. Industrial Chemicals, Inc.), Dr. Briggs. Agricultural Experiment Station, College Park, Md.

Trypsin inhibitor of raw soybeans, C. W. Ackerson and Raymond Borchers, department of agricultural chemistry; and F. E. Mussehl, department of poultry husbandry. Nebraska Experiment Station, Lincoln 1.

Feeding and range management of growing turkeys, project 90. Utilization of Indiana grains and proteins and vitamin supplements for growing chicks, project 157. Utilization of Indiana feeds in feeding chickens and turkeys for egg production and hatchability, project 158. Feed efficiency as affected by hereditary and physiological factors, project 190. Supplementary value of pure vitamins and vitamin-rich feeds for corn and soybean oil meal rations for poultry, project 200. Measurement of feed efficiency of corn, oats and wheat products in chick rations, all employing soybean oil meal as a principal ingredient, project 264. J. Holmes Martin, Purdue University, Lafayette, Ind.

Feeding to Swine

Nutritive deficiency of soybean oil meal when fed with corn including amino acids, vitamins and mineral deficiencies. Methods of feeding soybean oil meal to prevent overconsumption. Thiamine deficiency of soybean oil meal for swine and poultry. Animal husbandry department, University of Illinois, Urbana.

Limited acreage for hog grazing. Department of agronomy, Florida Agricultural Experiment Station, Gainesville, Fla.

Fertilizers

Use of nitrogen, state No. 109. R. E. Yoder, G. W. Volk, L. E. Thatcher. Ohio Experiment Station, Columbus and Wooster.

Direct applications to soybeans. Agronomy department, University of Illinois, Urbana, Ill.

Effect of various levels of nitrogen used just previous to planting as side dressing. O. E. Phillips, agronomist. Delaware Experiment Station, Newark, Del.

Department of agronomy, Agricultural and Mechanical College of Texas, College Station.

Influence of soils and crops of fertilization of cereals only, legume hay only, or of all crops in 4-year rotation of corn-soybeans-wheat-clover, project 75, A. J. Oltrogge, agronomy department. Effects of supplementing conventional fertilization with varying amounts of plant nutrients plowed under for corn and other crops, project 147, A. J. Oltrogge and R. R. Mulvey. Place in the rotation to apply manure to sandy soil, project 149, A. J. Oltrogge. Response of soybeans to various rates of fertilizers plowed under on certain Indiana soils, project 207,

F. A. Frank. Effects of fertility level and chemical composition of several soybean varieties, project 213, A. H. Probst and F. A. Frank. Response of soybeans to phosphate in form of superphosphate and rock phosphate and to nitrogen, project 239, F. A. Frank. Purdue Agricultural Experiment Station, Lafayette, Ind.

Soybean production in relation to fertilizer applications and crop sequence, project 782, A. J. Englehorn and L. Dumenil. Rotation and fertilizer studies with corn, soybeans, oats, hay and green manure crops on Clarion and Webster soils at Ames, project 840, A. J. Englehorn and W. H. Pierre. Liming and fertility investigations on the slowly-drained prairie soils of northeastern Iowa, project 900, H. R. Meldrum and W. H. Pierre. Value of different crop rotations and soil treatments on slowly-drained Carrington silt loam soil, project 940, H. R. Meldrum and W. H. Pierre. Soils subsection, Iowa State College, Ames.

Food

Value of protein of soybean in dietary of adult human subjects. Soybean and soybean products as human food. Home economics department, University of Illinois, Urbana, Ill.

Protein value of Mendota soybeans on human subjects, Mrs. M. S. Reynolds. Division of home economics, College of Agriculture, Madison 6, Wis.

Genetic Studies

Correlation studies of inheritance of morphological characters of soybeans, John Gray. Louisiana State Experiment Station, Baton Rouge 3, La.

Genetic investigations of soybeans, No. 127, A. H. Probst. Purdue Agricultural Experiment Station, Lafayette, Ind.

J. H. Torrie, A. M. Strommen, C. Rydberg. Department of agronomy, College of Agriculture, Madison 6, Wis.

Haemoprotein

Use of soybeans as source of nodules in preparation of haemoprotein, R. H. Burris. Department of biochemistry, University of Wisconsin, Madison 6, Wis.

Hail Damage to Soybeans

Agronomy department, University of Illinois, Urbana.

Effect of injuries simulating hail damage to soybeans (to be published), project 856, J. C. Eldredge and C. R. Weber. Farm crops subsection, Iowa Agricultural Experiment Station, Ames.

Hay

Methods of harvesting soybean hay. L. E. Thatcher, R. E. Yoder. Agronomy department, Ohio Agricultural Experiment Station, Wooster.

Methods of curing soybean hay, including forced ventilation of haymows and stacks. Study of composition and digestibility of soybean hay as affected by soil nutrients. Department of dairy husbandry, University of Illinois, Urbana, Ill.

Hybrids

Soybean breeding with special reference to hybrid behavior. Agronomy department, University of Illinois, Urbana, Ill.

Inoculation

Effectiveness of different inoculants. Agronomy department, University of Illinois, Urbana.

T. A. Kiesselbach and W. E. Lyness, department of agronomy, Nebraska Experiment Station, Lincoln 1.

Nitrogen fixation by soybeans, project 789, W. V. Bartholomew and A. J. Englehorn. Farm crops subsection, Iowa State College, Ames.

Insects

Insects affecting stored soybeans. Biology and control of grape colapsis. Entomology department, University of Illinois, Urbana, Ill.

Practical insect control, John Gray, agronomist. Louisiana Experiment Station, Baton Rouge 3, La.

Nutrition of Soybeans

Bankhead-Jones No. 65, G. W. Volk, J. H. Wilson, R. H. Simon, and R. E. Yoder. Ohio Agricultural Experiment Station, Columbus and Wooster, Ohio.

Pod and Bean Number

Factors affecting the number of pods and number of beans in pod. Agronomy department, University of Illinois, Urbana, Ill.

Rate and Date of Seeding

Agronomy department, University of Illinois, Urbana, Ill.

Differential response of soybean varieties to rate and date of planting. Conducted on regional basis cooperatively with Illinois, Indiana and Ohio, project 659 (to be published), C. R. Weber and M. G. Weiss. Iowa Agricultural Experiment Station, Ames, Iowa.

Rate, date and method of seeding, John Gray, agronomist. Experiment Station, Louisiana State University, Baton Rouge 3, La.

Optimum date for planting adapted soybean varieties and range of dates over which varieties may be planted successfully, Carl V. Feaster. Missouri Experiment Station, Columbia, Mo.

Rate, date and depth of planting. Close drilled versus cultivated rows, widths 21 in., 28 in., 35 in. and 42 in., T. A. Kiesselbach and W. E. Lyness, department of agronomy, Nebraska Experiment Station, Lincoln 1.

Comparison of solid seeding with row seeding at various rates and depths, projects 149-153, R. R. Mulvey. Purdue Agricultural Experiment Station, Lafayette, Ind.

South Dakota Agricultural Experiment Station, Brookings, S. D.

Department of agronomy, Agricultural and Mechanical College of Texas, College Station.

Effect of rate and method of planting on yield and quality, J. H. Torrie, A. M. Strommen, C. Rydberg. Department of agronomy, University of Wisconsin, Madison 6, Wis.

Residues

Effect of soybean and corn residues and straw mulch on soil. Agronomy department, University of Illinois, Urbana, Ill.

Crop residue management and mulch tillage experiments, project 236, L. W. Hurlbut and G. D. Bedell. Purdue Agricultural Experiment Station, Lafayette, Ind.

Department of agronomy, South Carolina Experiment Station, Clemson, S. C.

Rotations

State No. 111, E. Thatcher, R. E. Yoder, Fry Farm. Corn-soybeans-wheat and sweet clover versus corn-wheat-mixed hay, State No. 112, L. E. Thatcher. Cultural and rotation experiments with soybeans at Wooster, Columbus and outlying test farms, State No. 118, L. E. Thatcher, Lewis C. Saboe, C. J. Willard, E. E. Barnes, R. E. Yoder. Ohio Soybean Processors Association project, effect of recommended cultural practices on yield, D. F. Beard, L. E. Thatcher. Ohio Agricultural Experiment Station, Columbus and Wooster, Ohio.

Rotations including soybeans. Agronomy department, University of Illinois, Urbana, Ill.

Crop rotation studies with corn, oats and soybeans versus no soybeans, T. A. Kiesselbach and W. E. Lyness, department of agronomy, Nebraska Experiment Station, Lincoln 1.

Comparative studies of various systems of cropping under different soil and climatic conditions, project 142, R. R. Mulvey and A. J. Ohltrogge. Purdue Agricultural Experiment Station, Lafayette, Ind.

Seeding after Soybeans

Bankhead-Jones No. 50, C. J. Willard and L. E. Thatcher. Ohio Agricultural Experiment Station, Columbus.

Getting clover stands following soybeans. Agronomy department, University of Illinois, Urbana, Ill.

Influence of mineral fertilization and liming on stands and production of clover following soybeans, project 210, F. A. Frank. Purdue Agricultural Experiment Station, Lafayette, Ind.

Seed Treatment

Legume seed treatment for control of plant diseases, project 530.1. Oklahoma Agricultural Experiment Station, Stillwater.

Role of seed disinfectants in the control of diseases caused by soil-inhabiting pathogens, project 858, C. S. Reddy and G. Semenuik. Plant pathology subsection, Iowa Agricultural Experiment Station, Ames.

Silage

Soybeans as a silage crop. Department of dairy husbandry, University of Illinois, Urbana, Ill.

Testing of Cornbelt grain varieties for use with corn for silage, R. G. Wiggans, professor of plant breeding. Cornell University Agricultural Experiment Station, Ithaca, N. Y.

Grass and legume silage as supplements in poultry rations, project 259, J. Holmes Martin. Purdue University, Lafayette, Ind.

Soils

Nutrient uptake of soybeans affected by saline soils, New Mexico, Wm. A. Albrecht and D. A. Browne. Department of soils, University of Missouri, Columbia, Mo.

Soil and moisture conservation studies, project 124, H. Kohnke and G. D. Bedell. Soil Conservation Service. Influence of soybeans and other crops on soil conditions and growth of subsequent legume crops, project 269, F. A. Frank and H. Kohnke. Purdue Agricultural Experiment Station, Lafayette, Ind.

Soy Flour

Effect of method of preparation on nutritive value. Animal Husbandry Department, University of Illinois, Urbana, Ill.

Soy flour in pastries. J. G. Woodroof, food technologist. Georgia Agricultural Experiment Station, Experiment, Ga.

Soy flour in bakery products (supported by the Soy Flour Association). Study of effects of various types of soy flour on the rate of staling of bread and other bakery products and to determine the constituents of soy flour which have a major influence on dough and bread quality with a view to establishing a basis for improving the baking quality of soy flours, W. F. Geddes. University of Minnesota, University Farm, St. Paul 1.

Soy Protein

Fundamental study of proteins of soybean (supported by Central Soya Co., Inc.) Aim of research to fractionate the proteins of the soybean and determine their physical and chemical properties with view to securing information which may prove of value in developing further industrial uses for soy protein. D. F. Briggs. University of Minnesota, University Farm, St. Paul 1.

Soybean Oil in Cooking

J. G. Woodroof, food technologist. Georgia State Experiment Station, Experiment, Ga.

Sprouts

Factors governing the development and size of soybean sprouts, Dr. Clive McCay. Cornell Agricultural Experiment Station, Ithaca, N. Y. (Completed.)

Storage

Storage studies including germination and determination of acid number. Agronomy and agricultural engineering departments. Effect of storage of whole and ground soybeans on energy content and protein quality, animal husbandry department, University of Illinois, Urbana, Ill.

Energy and heat requirements in drying of soybeans, ear and shelled corn under mechanically controlled ventilation, project 205, W. T. Miller, D. M. Doty, A. J. Ullstrup and I. D. Mayer. Purdue Agricultural Experiment Station, Lafayette, Ind.

Yield

Effect of imperfect stands on yield data in replicated row tests, Lewis C. Saboe. Agronomy department, Ohio State University, Columbus, Ohio.

Effect of weed competition on soybean yields. South Dakota Agricultural Experiment Station, Brookings, S. D.

—s b d—

ITALIAN OILSEEDS UP

The Italian oilseed harvest of 1947 appears to have been the largest on record, with rapeseed, sunflowers and peanuts the largest crops, reports *Foreign Crops and Markets.*

Rapeseed production was 23,000 tons, sunflower 12,000 tons, and peanuts 8,000 tons.

Though of minor importance, the soybean crop reached 150 tons in 1947.

SEEDBURO SALESMEN

Pictured here are four experienced salesmen for Seedburo Equipment Co., 618 W. Jackson Blvd., Chicago 6, Ill., whose appointment to the firm's Indiana territory was recently announced.

Ted Hobson, a native of Indiana, has been working in the farm equipment trade for the past 20 years, 9 years selling direct to farmers, and 3 years calling on country elevators and seed houses. He will represent Seedburo in southeastern Indiana.

Boyd Martin, another Indiana native, has been in the manufacturing business at

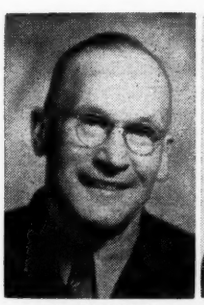
HOBSON

MARTIN

South Bend, Ind., spent 3½ years in the Navy, and has called on country elevators for 3 years. His territory is northeastern Indiana.

Harry S. Brewer, also a native of Indiana, has had 25 years' retail selling experience, including 12 years calling on country elevators. He was first man to sell hybrid corn to the retail trade east of the Mississippi. He will represent Seedburo in western Indiana.

Charles W. Sanders also knows his way around in the seed, grain and elevator business. He was a farmer for 22 years, spent 10 years in direct selling to farmers and 5 years calling on elevators. As a side issue, he was auctioneer for 24 years. His territory is a portion of west central Indiana.



SANDERS

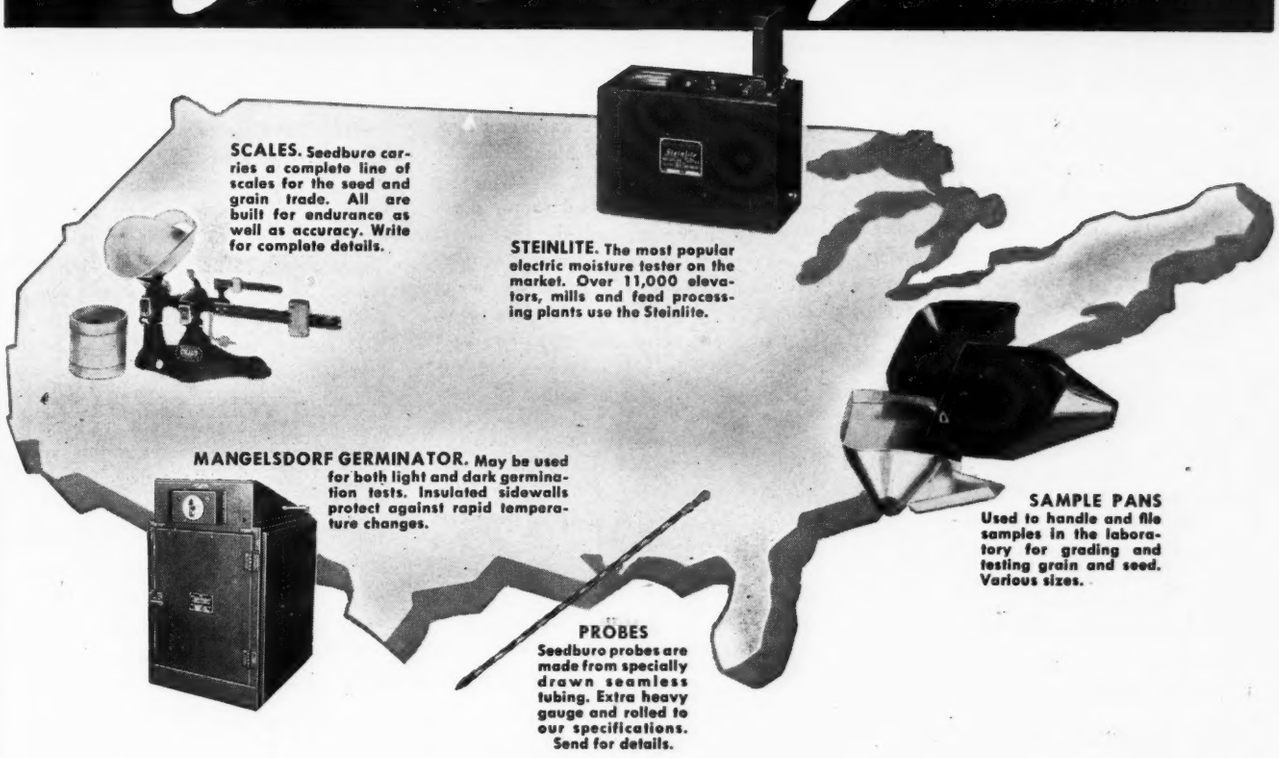
BREWER

—s b d—

FAVOR GRADE CHANGE

Members of the Indiana Farmers Grain Dealers Association joined the Illinois association in going on record in favor of a change in soybean grading, at their annual meeting at Wabash, Ind., in February.

ONE OF SEEDBURO'S 73 FIELD SERVICE MEN *Is Near You...*



SCALES. Seedburo carries a complete line of scales for the seed and grain trade. All are built for endurance as well as accuracy. Write for complete details.

STEINLITE. The most popular electric moisture tester on the market. Over 11,000 elevators, mills and feed processing plants use the Steinlite.

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SOME DROP IN 1948 ACREAGE

Cut in soybean acreage under 1947 may not be quite as deep as the U. S. Department of Agriculture's March 1 forecast of 10 percent, *Soybean Digest* crop reporters indicate.

If there is any change it will be toward greater soybean acreage than indicated March 1. Heavy winterkilling of clover in Iowa, Southern Minnesota and Northern Illinois, and not so many acres of oats seeded in southern Illinois as expected will make for more soybean acreage in those states than earlier planned.

However, the anticipated shift of some land from row crops appears to be under way in heavy soybean producing areas. This will mean some cut in soybean acreage, particularly in Iowa and Illinois.

Acreage will hold up in Minnesota and Missouri, and will increase slightly in Arkansas. It will drop in some of the states on the fringes of the soy belt—in South Dakota, Nebraska, Michigan and Kansas.

Weather has been more favorable for spring field work than for several years, and farm work is seasonally well advanced. Soybean planting has begun in the southern part of the soy belt.

Acreage planted to Lincoln and other new varieties continues to increase. There is more row planting in Illinois and Indiana than in past years.

May 1 reports of *Soybean Digest* correspondents follow:

ARKANSAS

L. M. Humphrey, Scott, for Little Rock area: Continued good price will hold up acreage. If any change will be slight increase. Weather conditions excellent at moment. Weather has been warm and rainfall moderate since last of March. Will be fewer Arksoys and Ralsoys. More Ogdens and Dortchsoys. Ogden seed supply good. Dortchsoys somewhat limited.

Jacob Hartz, Stuttgart, for east central: Last year's prices will encourage about same acreage. Weather conditions good. Ample moisture. Planting started last week in cotton territory. More Ogdens and Volstates this year. Seed available.

ILLINOIS

Russell S. Davis, Clayton, for west central: Soybean acreage will be smaller. More oats seeded than common. Very little wheat winterkilled. A few fields of oats were crusted badly and may be too thin to leave. Weather conditions excellent. Plenty of subsoil moisture. Ground plowing well. A tendency to get more land out of row crops and back to clover. How much will affect soybean acreage hard to forecast.

H. I. Cohn, Valley Farms Co., Wright, for central midwest Ill.: Farmers need oats for early feed. Soybean acreage off about as much as oats have been increased, possibly 10%. Valley Farms planting 1,000 acres Rickard Koreans and 1,500 acres Lincolns.

A. J. Surratt, Illinois agricultural statistician, Springfield: Cut in acreage not quite so drastic as the 11% indicated in the March intentions survey. Intentions for moderate increase in oats acreage realized in northern half, but fell far short of large increase intended southward as wet March delayed timely early seeding there. This may shift 75,000 to 100,000 more acres to soybeans than earlier planned. Majority of farmers feel 1948 crop price will compare well with those for other major crops. The 1948 acreage represents return to original intended acreage in 1947, which was expanded later by adverse planting season for corn and oats. Urge to build up grain feed supplies and clover acreage this year is strong generally. A further increase in Lincolns. Do not know about other varieties. Topsoil getting a little dry but subsoil moisture near normal. Week ending April 24 excellent for advancing all field work, particularly oats seeding which is practically completed.

J. E. Johnson, Champaign, for Champaign and adjoining counties: 3 to 5% decrease in soybean acreage under 1947. No winterkilling. Full oats acreage planted as planned. Slight increase in oats acreage, large increase in wheat and slight increase in corn. Growers and particularly local elevators are discouraged with their unsatisfactory experience with the 1947 crop as to grading discounts, also very unstable type of market for the entire crop. No way of determining price from one day to next. Planting this year largely Lincoln.

Walter W. McLaughlin, McLaughlin Agricultural Service, Decatur, for Decatur and vicinity: Probable acreage about like USDA's March forecast. Excellent weather. Most soybean ground plowed and disked. A few early birds have planted beans. Started April 28. Some clover winterkilled and this might increase beans slightly, but most of such land will be planted to corn. Most acreage Lincoln. A few Hawkeye.

Gilbert F. Smith, Mahomet, for east central: Acreage about same as March forecast. Weather dry and windy. Plowing late but catching up. Hard rain May 1. Wheat is good. Clover fair. Do not believe much if any will be plowed.

INDIANA

Ersel Walley, Walley Agricultural Service, Fort Wayne, for northeast Indiana and northwest Ohio: Acreage about same as 1946. Price increase following drop in market greater for beans than other crops, encourages acreage. Plenty of seed. No winterkilling. Soil working better than for several years. Twice as many rowed beans as any previous year.

K. E. Beeson, Indiana Corn Growers Association, West Lafayette: Wet weather delayed oat seeding in Indiana, and it is reported that not all intended oat acreage was planted. Very little winter-killing of wheat has been reported, and clover stands have survived the winter in excellent shape. Very few reports of winter-killing of alfalfa have been received. Supplies of seed still adequate.

J. B. Edmondson, Danville, for south central: Indications are that about same acreage as last year will go in soybeans. Soys may gain some oats acreage. All available Hawkeye seed will replace Lincoln or Richland. Wet weather until 20th of April and then ideal. Ground getting dry and hard May 1 unless rains come. Many farmers want one more year of high incomes, and are crowding their farms with corn and soybean acreages. This will keep up acreage another year. Almost certain removal of margarine taxes will stimulate added interest in soybeans.

IOWA

Martin G. Weiss, farm crops department, Iowa State College, Ames: Estimated acreage 10% less than 1947. Bad winterkilling, especially in southeast Iowa and some spots in northwest. Will probably serve to increase soybean acreage. Weather conditions excellent for planting small grain and making seedings. Rain came in time. Extremely early varieties brought in for late planting in 1947 will not be planted extensively. Estimated Lincoln acreage for state will increase to 70%.

O. N. LaFollette, seed and feed division, State Department of Agriculture: Slight reduction in soybean acreage. Will plant 1¾ million acres, ¼ million for hay. Thousands of acres of red clover winterkilled, also some alfalfa. This land will in part go to soybeans. Greater swing to Lincoln and Earlyana replacing such varieties as Mukden. Weather and moisture conditions good. Plenty of seed but should be tested before planting due to much poor seed.

Otis J. Luttswager, Buckeye, for Hardin County: Acreage same as 1947, higher than USDA March estimate. Killing of seedings reason for revised upward estimate. New varieties will be planted in amounts available. Seed scarce. Weather conditions good.

KANSAS

Kansas State Crop Report (April 27:) Preparation of seedbeds for corn, soybeans and sorghums active early part of week.

E. A. Cleavinger, extension service, Kansas State College, for eastern: April 26 estimated acreage 200,000 compared with 1948 goal of 207,000 acres and 244,246 acres in 1947. Late seeding of oat crop

will increase soybean acreage and decrease oat acreage. Increase in Gibson and Chief varieties. Will be 400-500 acres of S-100 seeded. Dry in April. Seedbed preparation delayed. Drought broken April 24.

MICHIGAN

S. C. Hildebrand, Michigan Crop Improvement Association, East Lansing: Soybean acreage about 15% less than 1947 as USDA forecast. No indication will differ from forecast. Heavy wheat acreage and added corn acreage. Weather conditions good for most sections. No change in varieties except where Hawkeye is being increased. Low seed supply, quality only fair.

MISSISSIPPI

Lacy S. Stoner, Holly Bluff, for Yazoo County: Acreage for this section will be as large as 1947. In upper Delta of Mississippi large acreage under water now. If they do not get relief in time to plant cotton will probably plant beans.

MISSOURI

Harry Plattner, Malta Bend, for central: Acreage same as 1947. No winterkilling. Weather conditions average to below normal. No change from last year in varieties. Lincolns possibly best. Seed is available.

J. Ross Fleetwood, extension specialist field crops, University of Missouri, Columbia: Soybean acreage 90-95% of 1947. We already have out more oats and will plant more corn than 1947 so soybeans will be cut somewhat. Very little abandonment of winter crops this year so far. Most people feel beans offer as stable price setup as any crop available this year. Driest April of record. Farm work very well caught up. Season ahead of last year.

MINNESOTA

R. E. Hodgson, Waseca, for south central: I'm guessing soybean acreage 100% of 1947. Weather conditions favorable so far. Winter wheat badly damaged (50% kill or more.) Corn borer has scared some away from that cash crop. Most farmers fairly well satisfied with market.

NEBRASKA

Fremont Cake & Meal Co., Fremont, for east central: Soybean acreage about 10% under 1947. Weather conditions good. Farm work well advanced. More Lincoln beans if we have a normal season. Price favorable for good acreage.

NORTH CAROLINA

Frank Parker, agricultural statistician, Raleigh: Weather conditions in commercial soybean belt generally favorable past 2 weeks. Farmers making rapid progress in spring sowing. No change from last year's varieties expected.

OHIO

G. G. McIlory, Irwin, for central (Apr. 26:) Soybean acreage some less than 1947 but that depends on weather conditions during next 6 weeks. Very wet here until last week or 10 days. Farmers about up to normal on work. Oats are all in. Some corn will be planted this week. Wet weather during next month would increase acreage of soybeans at expense of corn acreage. Everyone expects good comparative price for soybeans. No change in varieties except increase in Hawkeyes.

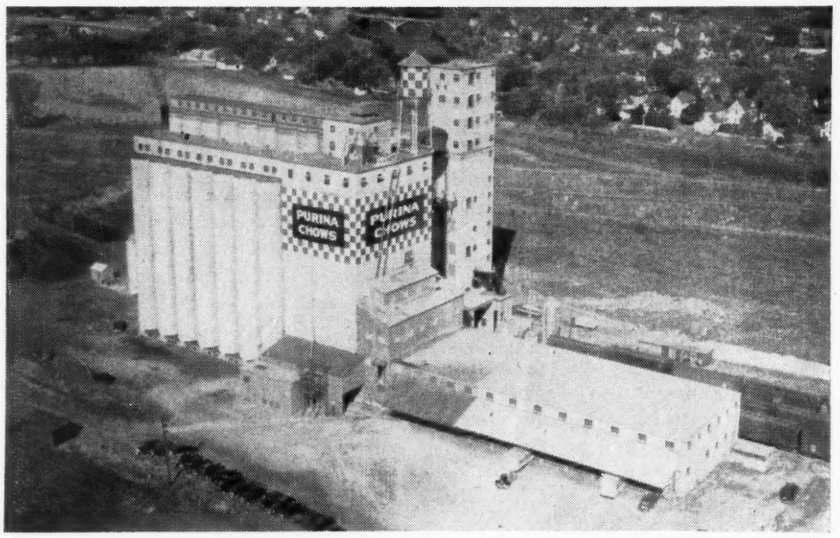
SOUTH DAKOTA

H. G. Miller & Son, Garden City, for Clark County: Acreage much less this year due to what happened last fall. 50% of beans were left in field till April due to early snow last fall. Weather conditions good for small grain. Varieties mostly Wisconsin 507, Mandarin and Ottawa Mandarin. I think there will be seed available.

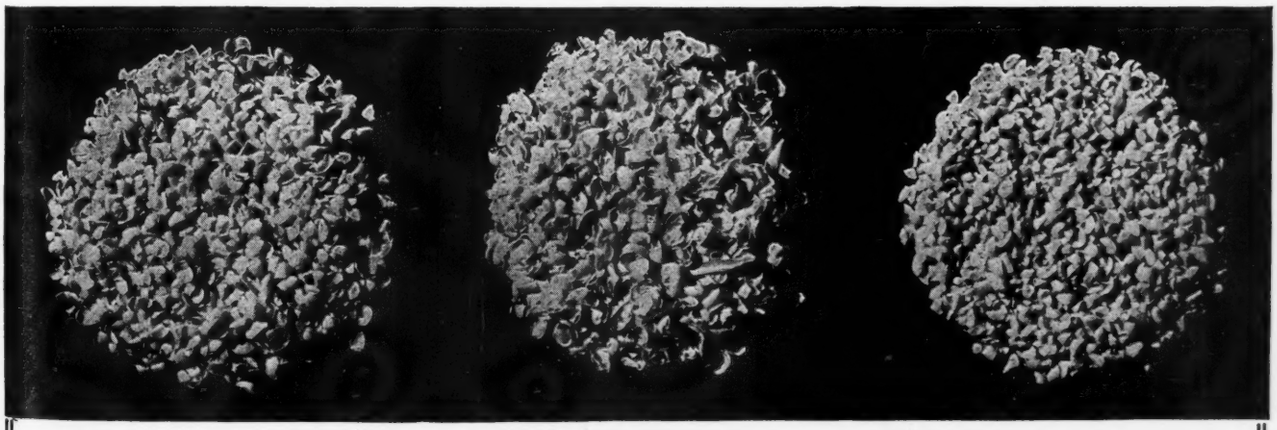
CANADA

Robert H. Peck, River Canard, Ont., for southwest Ontario: Possible 50% increase in acreage over last year. Too soon to estimate accurately as continued wet weather will reduce spring grain crop, and rain during corn planting season may reduce corn. Both could increase soybean acreage even more. There is market for 300% increase in acreage. Weather conditions quite wet preventing much early land preparation. Seed supply not too good.

Purina's New Iowa Elevator



This new elevator providing storage capacity for 820,000 bushels of grains in addition to previous facilities has been put into operation at Iowa Falls, Iowa, by the Ralston Purina Co., manufacturers of Purina Chows, Manager H. N. Johnson reports. The new structure is 296 feet long and 177½ feet high and includes 26 tanks, star bins and a head house. Bins are 120 feet high and 20 feet in diameter. Unloading facilities include a concrete hopper with carload capacity for rail car and two truck dumps of 30-ton capacity each. Iowa Falls is one of five Purina plants specially equipped for soybean processing.



Publications

Feeding

TOO MUCH HEAT INJURES SOYBEAN OIL MEAL. *What's New in Farm Science.* Annual report of the directors, Wisconsin Agricultural Experiment Station, Madison, Wis.

Chicks grow poorly when their high-protein feed consists of soybean oil meal that has been heated too long, on the basis of trials by D. R. Clandinin, Windsor Cravens, C. A. Elvehjem and James Halpin at the Wisconsin Agricultural Experiment Station.

In several experiments it was found that best results were obtained when unheated solvent-extracted soybean flakes were heated at 15 pounds pressure for 4 to 15 minutes. The growth rate of chicks showed a sharp downward trend when the heating was continued for one to four hours.

This matter of processing soybean oil meal was studied in considerable detail some years ago, and many operators of soybean mills at that time made use of the findings to improve their products. However, not all soybean oil meal is of good quality even today.

Further experiments were conducted to learn why excessively heated meals make poor feed. New developments in nutrition now make it possible to carry out more precise studies along this line than could be made in the 1930's.

One finding was that a soybean oil meal prepared from flakes pressure-cooked for 4 hours can be somewhat improved by adding purified casein, and greatly improved by adding casein plus the known vitamins. Thus the quality of the protein is a factor, as well as vitamins.

Further work showed that among the amino acids which constitute protein, lysine and methionine are the ones which are too low in over-heated soybean oil meals.

It was found by a measurement of these two amino acids in over-heated soybean meals that the lysine was destroyed by excessive heating, while methionine was, for some reason, made unavailable to the chick.

EFFECT OF HEAT TREATMENT ON THE BIOLOGICAL VALUE OF SOYBEANS. By J. C. Fritz, E. H. Kramke and C. A. Reed, the Borden Co. nutritional research laboratory, Elgin, Ill. *Poultry Science*, Nov. 1947.

Tests with poultry poults indicated that the best biological value was obtained when ground raw soybeans were autoclaved at 15 lbs. pressure for 20 to 30 minutes.

Dry heat was not as desirable as moist heat and it caused damage to the protein content of the soybeans. This was not readily repaired by dry hydrolysis or by additions of lysine and methionine. Similar damage can be caused by excessive moist heat, but autoclaving at 15 lbs. pressure must be continued beyond 1½ hours to cause serious impairment of the biological value of the soybean product.

TRYPSIN INHIBITOR. V. NUTRITIVE VALUE OF TREATED SOYBEAN OIL MEAL AND SOME CHARACTERISTICS OF THE TRYPSIN INHIBITOR IN SOYBEANS. By Raymond Borchers, W. E. Ham, R. M. Sandstedt, C. W. Ackerson, R. H. Thayer and F. E. Mussehl. *Research Bulletin 152*, Nebraska Agricultural Experiment Station, Lincoln, Nebr.

The fifth in a series of publications covering the authors' work with the trypsin inhibitor found in raw soybeans. See also *Soybean Digest*, Oct. 1947, page 13.

SAFFLOWER SEED AS AN AMINO ACID SOURCE FOR CHICKS. F. H. Kratzer and Delbert Williams, division of poultry husbandry, University of California. *Poultry Science*, Nov. 1947.

Safflower seed protein was fed to chicks as the only source of amino acids in the ration. This protein was slightly deficient in arginine, lysine, methionine and either or both glycine and cystine.

Foods

ANTIOXIDANT EFFECT OF SOYBEAN FLOUR IN FROZEN PASTRY. By Andrea Overman, department of home economics, Oregon Agricultural Experiment Station, Corvallis, Oreg. *Food Research*, Sept.-Oct. 1947.

There is a growing interest in frozen storage of prepared food products. Because of the scarcity of published data dealing with the oxidation of fat in food mixtures at low temperatures, particularly in the presence of food material of a possible antioxidant nature, this study was undertaken.

The effectiveness of soy flour as an antioxidant for lard in frozen pastry was tested. The pastry was made with 0, 5, 10, 15, or 20 percent full-fat soy flour. Pies of two types were used, apple and custard, for which the pastry contained 0 to 20 percent soy flour. Three series of each type of pastry were prepared. One was baked before freezing; the second was stored raw; and the third was stored raw, and baked after removal from the freezer.

Peroxide numbers were determined on fat extracted from pastry containing the different percentages of soy flour. Free fatty acids as well as peroxide numbers were determined on fat extracted from crusts of pies held in frozen storage at 0° F. up to 12 months.

Free fatty acids were low and showed little difference between fats extracted from the different pie crusts.

In all cases, under conditions of this study peroxide formation was inhibited in fat of pastry containing soy flour. Peroxide numbers showed that fat and pastry containing soy flour in proportions of 5, 10, 15 or 20 percent kept about equally well,

with little difference between soy pastry stored raw or that baked prior to freezing.

Philippines

SOYBEAN CULTURE IN THE PHILIPPINES. By R. A. Rodrigo, chief, horticulture research section, Bureau of Plant Industry. *Philippine Journal of Agriculture*, third quarter 1947.

The soybean is a promising crop in the Philippines. Though few soybeans are at present grown there, some well adapted varieties have been found. The author believes the crop offers far-reaching possibilities to the future agriculture of the country.

In the big cities of the Islands many of the soybean products like soy sauce, tokua, tajuri, tojo, and miso are becoming more popular with the Filipinos. In some sections of the country where soybeans are being grown they are utilized either as a green or dry vegetable. The dried bean is also roasted to be eaten offhand or in coffee. The bean in the dough stage is boiled and eaten like a peanut.

Soybeans can be easily grown in many sections of the country and will find a good local market. The Philippines import considerable quantities of soybeans and soy products annually.

The Philippine Bureau of Plant Industry has to date made more than 200 introductions of soybeans from the U. S., China, Japan, Hawaii, Java and India; but at the present it recommends only a few varieties for planting in the Islands. These include the Ami which has long been under cultivation there and is well adapted to the varied soil and climatic conditions.

In general, soybeans thrive well in localities where such crops as corn and rice produce a good crop.

Soy's Future

FUTURE OF SOYBEANS IN THE CORNBELT. By Ersel Walley, Walley Agricultural Service, Inc., Fort Wayne, Ind. *Journal of the American Society of Farm Managers and Appraisers*, Oct. 1947.

The writer believes there may be some reduction in soybean acreage on many farms in the Cornbelt. However, with improvements in varieties and cultural methods, there may not be a proportionate decrease in total production.

He thinks soybeans will extend into parts of the Cornbelt where they have not been generally grown even during the war period. Wider use of machinery on farms will make this wider use probable.

"Higher value use of soybeans which might logically come from the inventive genius and chemical research of those who process soybeans and products derived therefrom could conceivably bring an expansion of the crop hardly believable at the moment," says Walley.

BOOKS

COTTONSEED AND COTTONSEED PRODUCTS, THEIR CHEMISTRY AND CHEMICAL TECHNOLOGY. Edited by Alton E. Bailey, votator division, Girdler Corp., Louisville, Ky. 960 pages, 208 illustrations, 6x9. $17.50. Order through Soybean Digest, Hudson, Iowa.

An authoritative treatise on the chemistry, technology and utilization of cottonseed and cottonseed products written by a group of specialists, and coordinated and integrated by Alton E. Bailey.

Cottonseed supplies a wide diversity of useful products. A comprehensive treatment of the cottonseed industry as attained in the present volume requires, therefore, the assembling of a competent group of experts and a superior editorial guidance.

The treatment of the subject matter is very broad. While of course all scientific and technological information has been collected and presented, nonchemical and engineering knowledge and economic and agronomic factors have been taken into account to a much greater degree than the title of the book might lead to believe.

Cottonseed and Cottonseed Products is a source of information for the expert. It is also of great value to technologists, merchants and laymen as a stimulating introduction to an important agricultural industry.

GRITS and FLAKES...

FROM THE WORLD OF SOY

Bernard Friel has been appointed to the staff of the Bates Grain Co., Kansas City, to manage the millfeed and protein meal department. Until recently, he was a sales representative for the Kansas Soya Products Co., Inc., Kansas City.

* * * *

Robert Zinn has been promoted to the position of director of educational service for Allied Mills, Inc. He joined Allied Mills' advertising and sales promotion division in 1945 and later was transferred to the educational service division.

* * * *

Work is expected to start soon on construction of two additions which will double the processing capacity of the Ralston Purina Co. plant in Iowa Falls. Contract has been let to the Blaw-Knox Co., Pittsburgh, Pa.

* * * *

Dr. Charles H. Tenent, retired physician and father of Edgar H. Tenent, Woodson-Tenent Laboratories, Memphis, died April 25, after a brief illness. He was 70.

* * * *

Progress in Products, the 16-mm. sound motion picture film released by the American Soybean Association and the National Cotton Council March 1, had 900 bookings the first 6 weeks after release. Film depicts the use of cottonseed and soybean oil in margarine. Bookings may be made through the American Soybean Association, Hudson, Iowa.

* * * *

Seedburo Equipment Co. announces the opening of a Northwest branch office at 922 Flour Exchange Bldg., Minneapolis. The office will be managed by Ed Raether, who has been identified with the grain trades in this area for many years.

* * * *

An annual summary of the grading of carlot receipts of soybeans and flaxseed has been issued by the U. S. Department of Agriculture extension service and Production and Marketing Administration. A copy may be obtained from the Chicago office of PMA at 1108 Post Office Bldg.

* * * *

J. H. Shollenberger, of the Northern Regional Research Laboratory, Peoria, left for Greece February 23 as a milling consultant for the U. S. Department of Agriculture.

* * * *

Because of the trend in the milling industry toward replacement of reels with sifters, the Allis-Chalmers Mfg. Co., Milwaukee, Wis., has withdrawn prices on its entire line of round, hexagonal and centrifugal reels, G. V. Woody, manager of the company's basic industries machinery department, announces.

* * * *

A. F. G. Raikes has been appointed assistant director of sales in the St. Louis general sales office of Bemis Bro. Bag Co. He joined the Bemis organization in 1938 as a member of the Kansas City sales force.

* * * *

"Isolation of Reversion Compounds in Soybean Oil," is title of an article by C. J. Martin, A. I. Schepartz and B. F. Daubert in the April issue of *Journal of the American Oil Chemists' Society.*

* * * *

"Kelkote," a scientifically prepared soy protein that nearly approaches the refinement of isolated proteins, is described in a bulletin issued by Spencer Kellogg & Sons, Inc., Decatur, Ill. "Kelkote" has been in production some months.

* * * *

Jeffrey spiral conveyor is described in a 48-page catalog issued by the Jeffrey Manufacturing Co., Columbus 16, Ohio. The catalog lists the complete line of conveyors and fittings.

* * * *

Recent promotions announced by Allied Mills, Inc., Chicago, include E. D. Griffin to the position of general sales manager, and F. E. Christen, Fort Wayne, assistant general sales manager. A. G. Philips, who has been general sales manager since 1926, continues as vice president and director of the corporation.

* * * *

L. R. Clausen, president of the J. I. Case Co. since 1924, retired in April. He will continue in charge of research, development and engineering of products made by the company. Theodore Johnson, executive vice president, was elected president.

COTTON COUNCIL HEAD

This is Harold A. Young, cotton planter and soybean grower who was recently elected president of the National Cotton Council. Young had been vice president of the Council under Oscar Johnson since its organization in 1938.

He operates a 3,500-acre farm at North Little Rock, Ark. A long-time advocate of diversified farming, he devotes part of his acreage to soybeans, oats and other crops, and raises purebred cattle in addition to cotton. Young has received wide recognition for his soil conservation work.

—s b d—

GLIDDEN BOOKLET

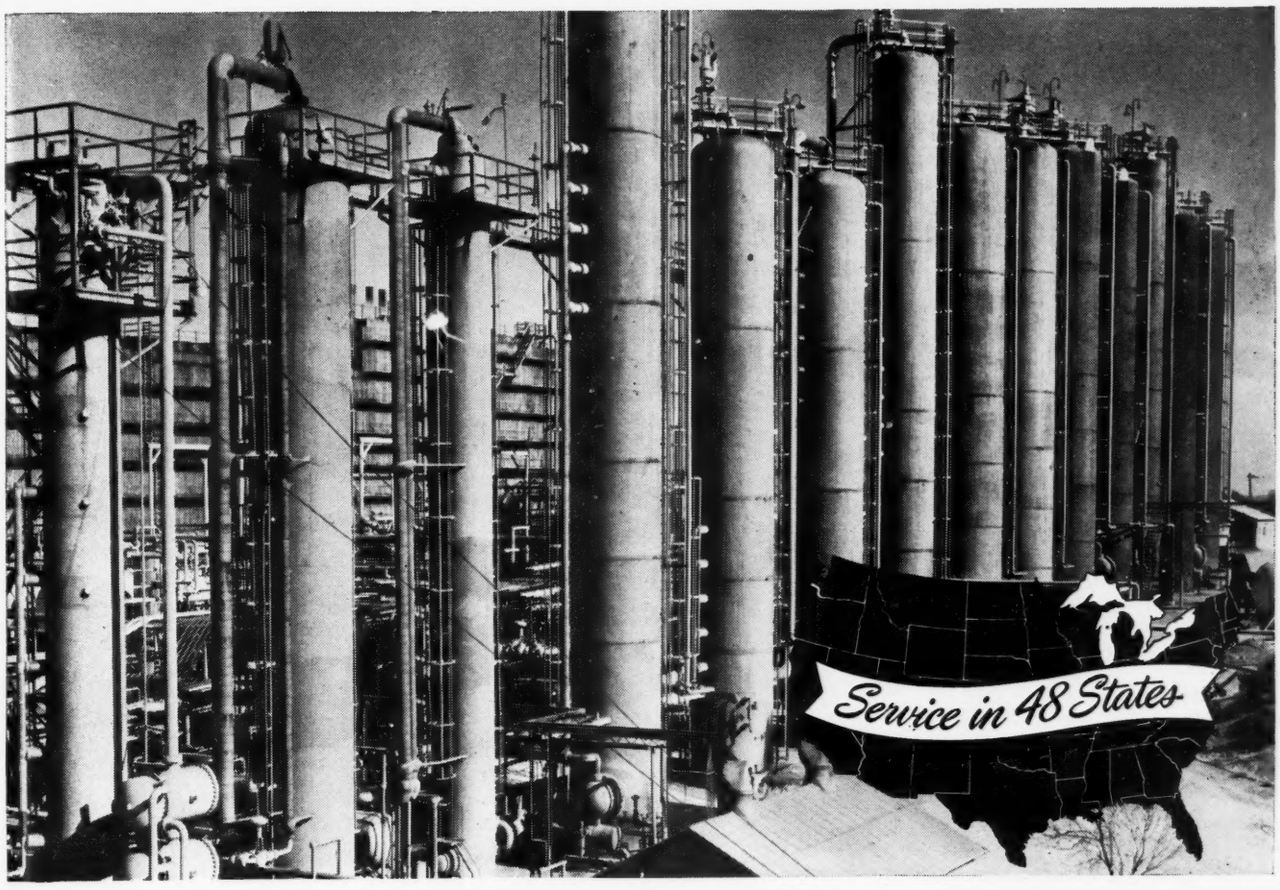
A carefully prepared and profusely illustrated brochure entitled *Industrial Soya Proteins* has been issued by the soya products division of the Glidden Co.

The new Glidden booklet, printed in color gives full details of such specialized products as "alpha" protein, prosein, spray-soy, and mulsoya, which are of wide use in many industries.

Copies of the booklet may be obtained by writing to Walter M. Bain, manager of the industrial protein sales dept., The Glidden Co., 5165 W. Moffatt St., Chicago, Ill.

In addition, a monograph entitled *Soya Protein Adhesives for Coated Papers* has been written by Mr. Bain, A. W. Neubauer, and R. A. Olson of the soya products division of the Glidden Co.

Further information about this exhaustive monograph may be obtained from this division.



Concerned about residue and odor? solvent losses? thorough extraction?

Obtaining a thorough extraction . . . minimizing your solvent losses . . . elimination of objectionable residue and odor—you can depend on Amsco . . . whatever your problems may be in these important respects, solve them with an extraction solvent from the most complete line of petroleum-base solvents available.

Over twenty-five years of experience enable us to offer you solvents that will do the job more efficiently and more economically. Yet Amsco solvents cost no more than less time-tested materials.

Here are some of the advantages that Amsco gives you:

1. ***Amsco's high, fast rate of extraction.***
2. ***Low solvent losses—due to close distillation, high initial boiling point, low dry point.***
3. ***Freedom from objectionable residue and odor.***
4. ***Amsco extraction solvents are immediately available in any quantities.***
5. ***Amsco's famous "Service that goes beyond the sale."***

For further information about how Amsco extraction solvents fit your special requirements, mail the attached coupon today.

THE MOST COMPLETE LINE OF PETROLEUM-BASE SOLVENTS AVAILABLE

Amsco products constitute the widest variety of petroleum solvents available. Every one of them, from oldest to newest, must measure up to the company's 25-year reputation—a reputation for uniform high quality, for prompt service, and for an eagerness to develop new products to meet industry's ever-changing demands.

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Please send information on the complete line of Amsco petroleum-base solvents to:

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(Samples sent on request)

Glenn A. (Bud) Green joined the personnel of Lee Wilson & Co. Wilson, Ark., in April. He will be in charge of advertising and promotion for the various enterprises of the firm. He succeeds Deane Allen of Little Rock.

* * * *

Chase Bag Co. received the "Certificate of Public Service" awarded by the Brand Names Foundation in recognition of over half a century of service. F. H. Ludington, president, received the award at a dinner at the Hotel Waldorf Astoria in New York City.

* * * *

Allis-Chalmers multi-circuit unit substations are covered in a new 16-page bulletin released by the company. Three transformer types—oil-filled, liquid-filled and dry-type, are described. *Bulletin 11B6935* may be obtained from Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

* * * *

Walter S. Kiesner, 46, branch manager at Minneapolis, Minn., for the feed and soy division of Pillsbury Mills, Inc., died April 15 following a long illness. He was president of the Northwest Feed Manufacturers Association in 1946.

* * * *

Richard Alcott, vice president and general manager, Riechman-Crosby Co., Memphis, Tenn., was elected president of the Southern Supply and Machinery Distributors Association at their convention in Atlantic City, April 27.

* * * *

Cargill, Inc., Minneapolis, Minn., and the International Basic Economy Corp., New York City, announce plans to establish a company in Brazil to merchandise and process oilseed and grain products. Cargill will provide the managerial and technical staff.

* * * *

Charles N. Alexander, Sr., 89, president of Rose City Cotton Oil Mill, Little Rock, Ark., died at his home near there April 27. Alexander was the second official of the Rose City Mill to die in 4 months. P. F. Cleaver, secretary-treasurer passed away in December.

* * * *

"The Soybean Has Merit," is title of a page of recipes of soy foods in the May 1 issue of KANSAS FARMER. *Recipes include baked soybeans, soy salad, soy meat loaf and soy-peanut butter cookies.*

* * * *

An important step in Chase Bag Co.'s expansion program is the recent purchase of a modern Los Angeles bag factory formerly operated by the Southern California Bag Co. This brings the number of Chase branch factories to 15.

* * * *

The Reichert Milling Co., Freeburg, Ill., has discontinued the production of wheat flour to process soy flour on contract for Archer-Daniels-Midland Co., Minneapolis. Machinery for processing soy flour was installed and production started March 18. Output is reported at nearly 300,000 pounds daily.

* * * *

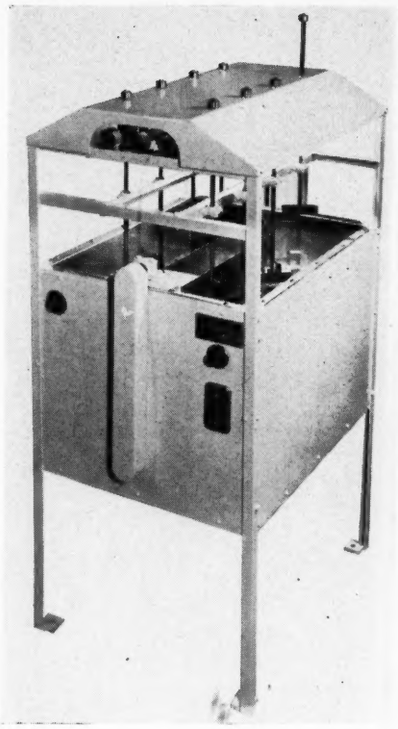
Several foreign governments, including India, Belgium and the Philippines, have sent technicians to the U. S. to study manufacture of Multi-Purpose Food, low-cost meal now being produced only in Los Angeles, reports *Pathfinder.*

* * * *

Stillwater Milling Co., Stillwater, Okla., has been named defendant in a suit for $15,917 by the Kansas Soya Products Co., Emporia, Kans. The plaintiff alleges failure of the mill to deliver soybeans at a price previously agreed on.

* * * *

R. K. Lindburg has been appointed sales manager of the newly-created farm supply division of McMillen Feed Mills, Fort Wayne, Ind. Mr. Lindburg retired from the feed business in 1947 after spending 25 years with Ralston Purina Co.



NEW LABORATORY MIXER

A laboratory size vegetable oil mixer has recently been developed for testing the quality of the oil, announces the Bernard Co., 922 Indiana Ave., Columbus, Ind.

The mixer consists of an eight-cup unit, providing necessary speeds on the paddle mechanism for processing oils to the various oil associations' specifications. The proper oil temperature is maintained by a flow of water around the cups, with water temperatures controlled by electric heating elements and thermostat type switches. An even temperature is assured through the use of a positive drive type agitator paddle, which evenly distributes the water flow over the entire tank area, in which cups are located.

The complete driving mechanism is of the positive type, consisting of chain and gear drives, insuring positive mixing speeds. All drive parts are completely enclosed, other than the removable mixing paddles. It requires a floor space of 2 by 3 feet.

Drying Jute on Bamboos

Native Carrying Jute Drum

USE Fulton BURLAP BAGS

Direct from the most reputable mills in India comes the Burlap used in Fulton Quality Burlap Bags. Here the Fulton Bag & Cotton Mills employs trained and experienced sewers to convert the cloth into strong, serviceable bags. The latest textile printing equipment gives your brand its full value. Fulton Bag & Cotton Mills has located its plants in strategic points throughout the country to assure you prompt, economical service. *Write our nearest plant for prices.*

FULTON BAG & COTTON MILLS

Manufacturers Since 1870

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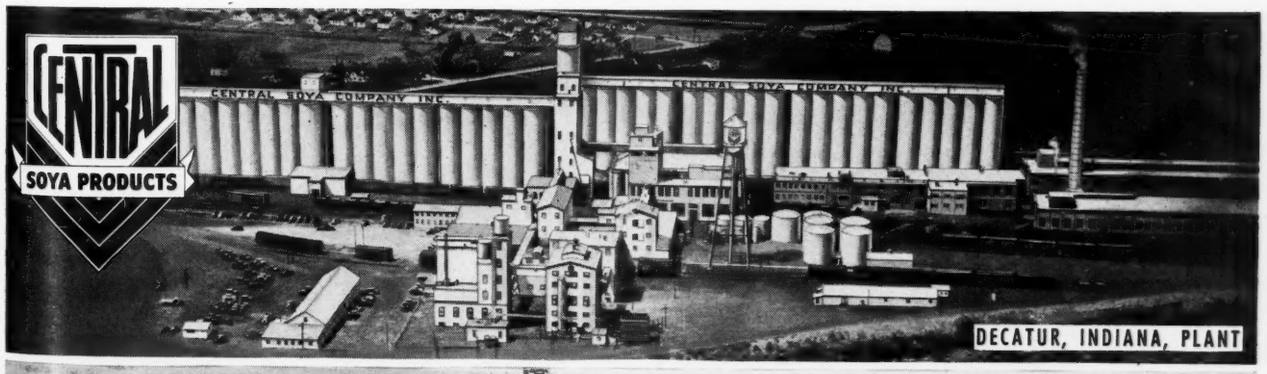

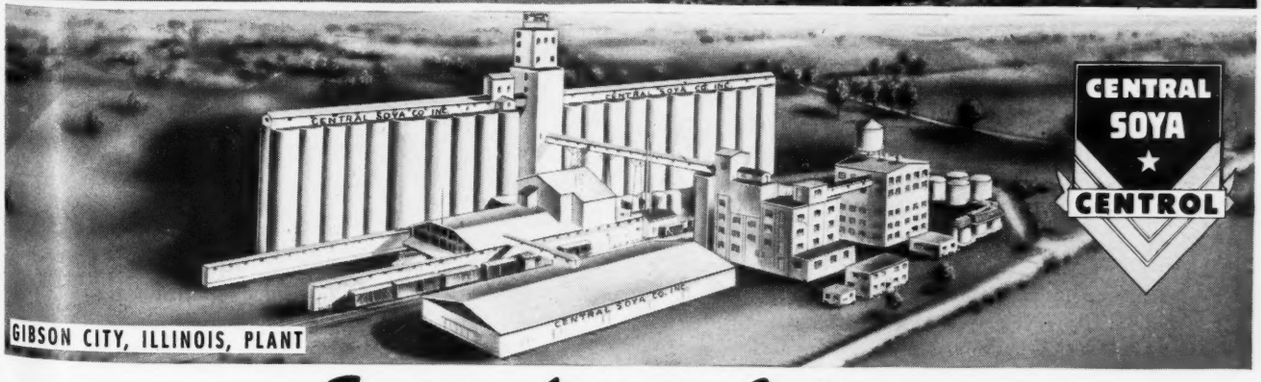

Serving American Industry

THE CENTRAL SOYA COMPANY, INC.

(EXECUTIVE OFFFICE)
FORT WAYNE, INDIANA

WASHINGTON Digest

Test for Oil Content

The two new research projects in which soybean growers are most interested at this time have been approved, and the work is under way.

The first and possibly the most important is an expansion of the work to improve flavor stability of soybean oil. This is being supervised by the Bureau of Agricultural and Industrial Chemistry at the Northern Regional Research Laboratory, Peoria, Ill.

Funds also have been allocated to the University of Pittsburgh to insure that its studies into the "reversion factor" of soybean oil will be continued.

With the prospect that more soybean oil will be consumed in the form of margarine as a result of tax repeal, this line of research takes on added significance for the soybean industry.

A second project of prime importance to growers seeks to develop a simple method of testing for oil content of soybeans and other oilseeds.

Something as simple and as practical as the Babcock test for butterfat in milk is desired. Such a device would enable growers to command a premium for high oil content beans.

Three of the Production and Marketing Administration's branches—fats and oils, grain and cotton—are conducting phases of this work. All the fats and oils research stemming from the Fats and Oils Branch is under direction of Robert M. Walsh, the new assistant director.

One of the fats and oils branch projects is to try to find a scientific basis for establishing grades. This is largely statistical, and it involves such questions as what weight should be given oil content, color, etc. in determining grade.

A third approved project involves soybean storage. Methods of storage and storage space are of secondary interest in the present phase of this work.

The main question this study will attempt to answer at this time is how desirable, or profitable, is it to store soybeans and under what conditions.

This involves primarily an economic study of storage risk against possible profit. Should the results indicate some considerable advantage for storing beans, the project may be expanded to include methods and storage facilities.

Another is a study of the economic effects of improved technology in processing on the industry, on market outlets, and on returns to growers.

This work will at first be concentrated in the cotton and peanut areas of the South, and may later be expanded to other oilseeds.

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One of the big problems of the research work, says Walsh, is recruiting qualified personnel. Another is getting the cooperation of industry in conducting the economic and technological studies.

End Tax on Margarine?

Margarine tax repeal appears to be just around the corner.

Handlers of the tax repeal bill in the Senate are confident they will find means of getting Senate passage before the present session ends.

The prestige of the big House vote on the Rivers bill—260 for; 106 against—will be a big help to the Senate leaders.

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

If the Senate committee handling the bill reports it out, there is little question but that the Senate majority will go along.

Should the Senate committee bottle up the bill, the procedure in the Senate for discharging the committee and bringing the bill to the floor is simpler than in the House.

When the repeal bill comes to the floor of the Senate, an effort will again be made to remove the Federal taxes only on margarine produced from domestic oils.

Such an amendment has been discussed with Senator Wilson of Iowa.

In the House, a similar amendment by Congressman Harvey of Indiana was voted down (by a voice vote.) Tax repeal forces were riding so high they were willing to settle for nothing less than repeal of everything, lock, stock and barrel.

The House bill repealed the taxes on both yellow and uncolored margarine, effective on signature by the President. The license fees on manufacturers, wholesalers and retailers also were wiped out, effective July 1.

It's taken for granted the President will sign a repeal measure, if voted by the Senate.

No one knows for sure just what the effects of repeal might be. But all the experts agree consumption of margarine would increase substantially.

Estimates of the increase start at about 30 percent "fairly soon," and range on up to 100 percent in a few years among the most optimistic margarine supporters.

Repeal also would cause more domestic oils to go into margarine, one of the most profitable outlets. This likely would re-

sult in a slight increase in the price levels of edible oils.

Last year margarine provided a market for 15 percent of the soybean oil and for 29 percent of the cottonseed oil. Slightly less than 3 percent of the U. S. coconut oil supply went into margarine.

Per capita margarine consumption last year was about 5 pounds. The average consumer before the war ate 7-1/3 pounds of butter to 1 of margarine. Last year the ratio was 2-1/3 to 1.

Meantime, a House Armed Services subcommittee has reported favorably a bill to permit the Army and Navy to use margarine as a table spread. With margarine tax legislation beginning to topple, this bill also is expected to pass.

After repeal of Federal taxes, margarine interests intend to center their fire on the 22 states which now prohibit the sale of yellow margarine. These states are:

California, Connecticut, Delaware, Idaho, Illinois, Iowa, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New York, Ohio, Oregon, Pennsylvania, South Dakota, Vermont, Washington, Wisconsin, and Wyoming.

ERP Is in High Gear

With the European Recovery Program now in operation, soya flour, soybeans, and protein meals are beginning to move in larger volume.

Since March 357,700,000 pounds of soya flour have been allocated for export (April-June delivery.) Most of this will go to the U. S. occupied zones of Germany, Austria and Japan.

In March 62 million pounds of soya flour were allocated. Most of it for Europe and relief.

Of this allocation, 48 million pounds is for Commodity Credit Corp. procurement, 3.6 million for a contingency reserve, and the remainder commercial procurement.

So far, the new Economic Cooperation Administration (the Marshall Plan) has authorized shipments of soya flour to Italy and other European countries totalling $447,877 in value.

Since March, the Army has been allocated 181½ million pounds of soya flour for Germany, and 114.2 million pounds for Japan. This is all for Army procurement.

Meantime, 10,250,000 pounds of edible varieties of soybeans have been allocated to the Philippines for manufacturing into food products such as bean cakes, food sauces, etc. This allocation is for commercial procurement.

A total of 16,000 long tons of protein feeds, oilseed cake and meal have been allocated for commerical procurement since the Marshall Plan got under way:

Six thousand long tons of linseed meal screenings have been allocated for export to any country in need.

Ten thousand tons of cake and meal have been allocated to Denmark (2,000 tons), France (3,500), Norway (1,000) and The Netherlands (3,500).

The cake and meal allocations are a part of approximately 48,000 tons proposed for export earlier during the second quarter of this year.

The Administration has now concentrated all government purchasing operations for foreign supply and price support programs in the Army and Department of Agriculture.

Army will now be responsible for all government purchases, both domestic and offshore, of soybeans and soya flour, whale oil, copra, lard and lard substitutes. All government purchases for price support, and for other major items in foreign relief programs, will be made by USDA.

These are present "informed guesses" on U. S. exports and imports of fats and oils and oilseed cake and meal under the European Recovery Program for the 15-month period beginning April 1 this year and ending June 30, 1949:

Fats and oils: Exports—April-June this year, 14,000 metric tons (2204.6 lbs. per ton); July, 1948-June, 1949, 122,000 metric tons; total for the 15 months, 136,000 metric tons. Total value estimated at 74.8 million dollars (July, 1947 prices).

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Imports—April-June this year, 9,000 met-

ric tons; July, 1948-June, 1949, 40,000 metric tons; total for 15-month period 49,000 metric tons. Total value estimated at 37.8 million dollars.

Oilseed cake and meal: Exports—April-June this year, 48,000 metric tons; July, 1948-June, 1949, 198,000 metric tons; total for 15-month period, 246,000 metric tons. Total value estimated at 22.1 million dollars. Imports—none for entire period.

These estimates are tentative. They are taken from work sheets prepared by the State Department before the new Economic Cooperation Administration took charge of the program, but they are the best estimates now available.

Fat, Oil Supply This is how the Bureau of Agricultural Economics sizes up the fats and oils supply and price outlook for the balance of this year:

Supplies, except for drying oils, down a little from last year, unless 1948 yields are unusually high.

Peanut production probably will be down a little. Soybean crop will be a little larger than a year ago. Animal fat output for balance of this year probably will be off some from a year earlier. Imports of coconut oil and copra will be less than in 1947. Linseed oil output will continue high.

Prices: except for drying oils, the prices of most fats and oils are expected to average at least as high as in March for the rest of this year.

In March the 26-item wholesale price index was 265 percent of 1935-39, compared with 261 percent in February and an average of 285 percent for 1947.

BAE makes the usual exception. There may be some decline in prices, they say, in the latter half of 1948, if new crops are large, or if business activity and consumer income decline.

In the tentative international fats and oils allocations, net 1948 imports of all fats, oils, and oilseeds in to the United States total about 300 million pounds in terms of oil. Net imports were 400 million pounds last year.

Lower U. S. imports of coconut oil, copra, and linseed oil are recommended in the tentative allocations.

The allocations call for U. S. export of 517 million pounds of food fats and oils this year against actual exports in 1947 of 640 million pounds.

Soybean Stocks Stocks of soybeans in all positions April 1 totalled 87,966,000 bushels, about seven-eighths as large as a year earlier and the smallest in the 6 years of record.

SLIPHER

(Continued from page 13)

In appraising the use of land resource, there is ever the principle that as agriculture grows older a shifting and sifting process sets in. The ultimate product should be better articulation between use and performance. Full performance comes from applying natural solution to known delinquencies. If these procedures were carried out on the three great soil areas described we should rightfully expect a sustained bean crop of 35 bushels an acre on no less than our current acreage.

Market Street

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here.

Rate: 5c per word per issue.
Minimum insertion $1.00.

MACHINERY WANTED—We are in the market for a two high or three high roller mill size 9 x 30 or 9 x 36. Machine must be in good condition and priced reasonably. Write Lawrenceburg Terminal Elevator Corporation, Lawrenceburg, Ind.

In The MARKETS

APRIL SHOWS SOME ADVANCE IN MARKETS

Soybeans continued irregularly during April the price rise begun the latter part of March. There was 42c difference between the high and low prices offered for May beans on the Chicago market.

Trading was light. Crushers were buying only in a limited way, with some plants reported closed down.

There was only a narrow price range for the month in soybean oil and oil meal. Meal prices pushed up $5 a ton during the week of the 17th, but lost most of the advance later in the month. Trend in the oil market was generally up, but the month's spread was only 3½c per pound.

Low price on the Chicago market for May No. 2 soybeans was $3.70 April 5. The high was $4.12 April 21. The month closed at $4.09, 39c above the opening.

The month's low for bulk soybean oil meal, Decatur basis, was $75 a ton April 2. High was $80 April 15-19. Month closed at $76, $1 above the opening.

Some distressed stocks of soybean oil meal were a depressing influence the fore part of the month, it was reported.

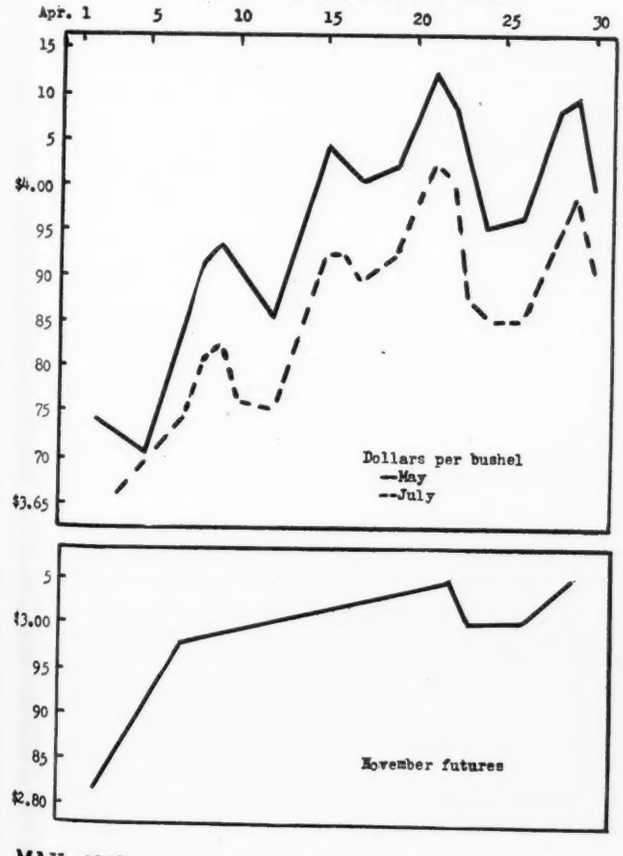
But these stocks apparently were moved out. The production trend for the month was downward with some processors reported to have shut down. With the Marshall plan going into high gear and considerable talk of export demand, more strength developed during midmonth.

Sizable quantities of soy flour were allocated for export. The Army bought 14 million pounds of soybean oil meal for export between March 26 and April 14.

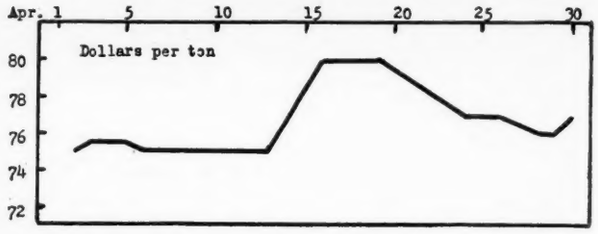
But there was a slackened demand the latter part of the month. Trading was light. Offerings were available but buying interest was limited, in spite of the strength of the whole soybean market.

Low price for crude soybean oil in tankers, F.O.B. Decatur, was

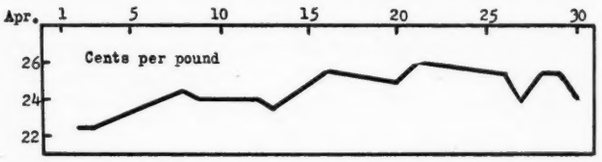
NO. 2 SOYBEANS, CHICAGO FUTURES



BULK SOYBEAN OIL MEAL, DECATUR BASIS



CRUDE SOYBEAN OIL, TANKERS, F.O.B. DECATUR



22½c per pound April 2-3. High was 26c April 21-22. The month closed at 24½c.

With refineries reaching out for supplies, there was a marked expansion in demand for fats and oils and active trading the first 2 weeks of the month. But some weakness developed later.

There was a mixed price pattern for vegetable oils and activity was light the latter part of the month.

MEMPHIS SOYBEAN OIL MEAL FUTURES CLOSINGS
Apr. 30*

May, 79.75-81.00; July, 78.50-79.75; Oct., flat 74.00; Dec., flat 68.50; Jan., flat 65.50; Mar., 63.50-65.00. Sales: 1,200 tons.

NEW YORK SOYBEAN OIL FUTURES — Apr. 30*

Close: May 27.75A, July and Sept., 26.50A, Oct., Dec., Jan. '49 and Mar., 24.00N. No sales.

A—asked. N—nominal.

*From Chicago Journal of Commerce.

● FARM SOYBEAN STOCKS. Soybean stocks on farms April 1 are estimated at 32.6 million bushels, the highest for the date since 1944, reports the crop reporting board of the U. S. Department of Agriculture. Last year, on April 1, only 25.5 million bushels were on farms. Disappearance from farms for the period January 1 to April 1, was, however, the heaviest in 5 years—18.1 million bushels compared with only 11.9 million bushels for the same quarter last year.

The North Central States, with about 30 million bushels on farms April 1, account for 91 percent of the nation's total soybean farm stocks. This is about 7½ million bushels more than was on farms in the area a year ago.

Illinois alone has over 10 million bushels. Iowa has the second largest stocks with 5½ million bushels. Indiana and Ohio each have over 4 million bushels on farms.

Stocks on farms in the South Atlantic and South Central States are less than a year ago and the supply in some localities is not much above that which is needed to meet "home grown" seed requirements.

Supplies of seed for the country as a whole should be ample. If planting intentions as expressed on March 1 are carried out about 15½ million bushels of seed will be needed to plant the 1948 acreage.

SOYBEAN STOCKS ON FARMS APRIL 1

	1947	1948		1947	1948
N. Y.	36	32	Del.	148	158
N. J.	53	56	Md.	166	115
Pa.	128	60	Va.	288	370
Ohio	2,763	4,042	W. Va.	4	3
Ind.	3,394	4,508	N. C.	1,030	822
Ill.	7,802	10,431	S. C.	43	60
Mich.	387	388	Ga.	22	34
Wis.	87	108	Ky.	251	458
Minn.	1,601	2,484	Tenn.	97	102
Iowa	4,629	5,525	Ala.	72	37
Mo.	1,292	1,782	Miss.	200	200
N. Dak.	16	15	Ark.	491	238
S. Dak.	66	115	La.	95	54
Nebr.	48	84	Okla.	5	7
Kans.	261	359	U. S.	25,475	32,647

• STOCKS OF SOYBEANS . Soybeans stored in all positions on April 1, 1948, amounted to about 88 million bushels, according to a report by the Bureau of Agricultural Economics. These April 1 stocks are only about seven-eighths as large as a year earlier and the smallest in the 6 years for which comparable data are available.

Current soybean stocks included about 36.7 million bushels at processing plants, as enumerated by the Bureau of the Census, and commercial stocks of about 7.6 million bushels at terminals, reported by the Production and Marketing Administration. The Crop Reporting Board estimated that only 11 million bushels were in interior mills, elevators and warehouses, but that nearly 33 million bushels remained on farms. These farm stocks were larger than on any April 1 of the past 3 years. Processors' stocks were smaller than on April 1 of the past two years, but larger than in any previous year, and stocks in other off-farm positions were relatively small.

Disappearance of soybeans in the January-March quarter of 1948 is indicated at 53.4 million bushels, of which 46.2 million bushels were processed for oil, according to the Bureau of the Census. For the corresponding quarter of 1947, disappearance was 54.5 million bushels, of which 49.6 million bushels were processed for oil. Disappearance from the October 1 supply of 187 million bushels has totaled 99 million bushels of which 87.5 million were processed for oil. Current supplies must provide approximately 15.5 million bushels required for planting the 1948 crop, and additional quantities for feed, food and export, which further reduces the quantity available for processing oil.

Stocks of Soybeans, April 1, 1948, with Comparisons (Thousand Bu.)

Position	Reported by	Apr. 1, 1946	Apr. 1, 1947	Jan. 1, 1948	Apr. 1, 1948
On Farms	(1)	29,872	25,475	50,749	32,647
Terminals	(2)	12,666	13,689	13,294	7,613
Processing Plants ..	(3)	37,249	41,970	48,855	36,656
Interior Mills, Elev. & Warehouses*	(1)	18,087	19,633	28,446	11,050
TOTAL		**97,899	100,767	141,344	87,966

*All off-farm storages not otherwise designated.
**Includes 25,000 bushels in Commodity Credit Corporation bins.
(1)—Crop Reporting Board.
(2)—Grain Branch, PMA.
(3)—Bureau of the Census.

Off-Farm* Stocks of Soybeans, April 1, 1948, with Comparisons

State	Jan. 1, 1948	Apr. 1, 1948	State	Jan. 1, 1948	Apr. 1, 1948
	1,000 Bu.			1,000 Bu.	
Ohio	8,824	5,623	Ky.	2,703	36
Ind.	8,576	3,900	Tenn.	2,172	1,289
Ill.	31,894	21,709	Miss.	709	172
Minn.	6,553	3,245	Ark.	1,690	916
Iowa	15,209	9,728	All Other States	4,892	5,047
Mo.	5,586	3,428			
Va.	495	198			
N. Car.	1,292	28	U. S.	90,595	55,319

*Includes stocks at processing plants as enumerated by the Bureau of the Census; commercial stocks at terminals, reported by the Grain Branch, P.M.A.; and stocks in interior mills, elevators and warehouses, estimated by The Crop Reporting Board.

• VEGETABLE OIL IMPORTS. United States imports of the principal vegetable oils and oilseeds (in terms of oil) for January and February totaled approximately 255 million pounds compared with about 276 million for the same period of 1947, reports *Foreign Crops and Markets.*

The greatest decrease occurred in the imports of linseed oil, which amounted to only 647,000 pounds compared with 20.8 million in the first 2 months of 1947. Copra imports dropped from 126 million to 112 million pounds but oil arrivals increased from 3 million to 15 million.

Receipts of castor beans and oil, in terms of oil, decreased from 35 million to 31 million pounds and oiticica oil from 3 million to .5 million. However, palm oil imports increased by 5 million pounds, tung oil by 3 million, babassu kernels by 1 million and olive oil by almost 2 million.

U. S. imports of principal fats and oils during 1947 totaled approximately 1,370 million pounds (in terms of oil,) about 50 per-

cent more than the 1946 imports but about 18 percent less than the 1935-39 average.

Receipts of copra and coconut oil (in terms of oil) approached 878 million pounds, representing a 76 percent increase over the quantity imported a year ago and a 37 percent increase over the prewar average.

• SOYBEAN INSPECTIONS. Inspected receipts of soybeans in March were somewhat smaller than for the preceding month and considerably below the March average for the crop years 1941-45, according to reports to the Department of Agriculture. March inspections totaled 3,927 cars compared with 4,374 cars in February and the March average of 4,884 cars. Inspected receipts for October through March this season were 66,196 cars compared with 69,417 cars for the same period last year.

March inspections showed 91 percent grading No. 2 or better, the same percentage as for February. Eighty-six percent graded No. 2 or better for October-March this season compared with 69 percent last season.

Inspections of soybeans in March included the equivalent of 19 cars inspected as cargo lots and truck receipts equal to about 24 cars.

• FACTORY USE SOYBEAN OIL. Factory production of crude soybean oil in March totaled 139,386,000 lbs. compared with 139,900,000 lbs. in February, reports Bureau of the Census.

Factory production of refined soybean oil in March was 108,829,000 lbs.; in February, 99,320,000 lbs.

Factory consumption of crude soybean oil in March was 120,583,000 lbs.; in February, 110,183,000 lbs. Consumption of refined soybean oil in March was 99,188,000 lbs.; in February, 94,091,000 lbs.

Factory and warehouse stocks of crude soybean oil Mar. 31 totaled 114,658,000 lbs.; Feb. 29 the total was 104,788,000 lbs. Stocks of the refined oil Mar. 31 were 84,831,000 lbs.; Feb. 29, 71,561,000 lbs.

• COMMERCIAL SOYBEAN STOCKS. Production and Marketing Administration's commercial grain stock reports for Mar. 30-Apr. 27, in 1,000 bu.

	Mar. 30	Apr. 6	Apr. 13	Apr. 20	Apr. 27
Atlantic Coast	292	198	170	167	164
Northwestern and Upper Lake	873	755	616	518	517
Lower Lake	3,934	3,726	3,341	2,827	2,597
East Central	1,482	1,425	1,146	1,036	815
West Central, Southwestern & Western	1,628	1,508	1,335	1,144	1,018
Total current week	8,209	7,612	6,608	5,692	5,111
Total year ago	13,689	12,562	11,741	9,653	9,346

• SOYBEAN GLUE IN PLYWOOD. Soybean glue consumed by the softwood plywood industry in February totaled 2,076,000 lbs. compared with 2,074,000 lbs. in January, and 1,975,000 lbs. in February 1947, reports Bureau of the Census.

Other glue consumed by the plywood industry in February, in pounds: casein 352,000; phenolic resin 3,673,000 lbs.; other 304,000 lbs. Total glue consumption in February was 6,405,000 lbs., compared with 6,846,000 lbs. in January.

Soybean glue stocks totaled 1,488,000 lbs. February 29.

• IMPORT CONTROLS REINSTATED ON FLAXSEED. The U. S. Department of Agriculture has announced reinstatement of import controls on flaxseed and linseed oil from Canada and Mexico, effective May 1, through an amendment to War Food Order 63. This order controls the importation of various fats and oils and rice.

• STANDARD SHORTENING SHIPMENTS. Reported by members of Institute of Shortening and Edible Oils, Inc., in pounds.

April 3	5,295,281
April 10	7,277,310
April 17	8,355,854
April 24	6,874,126
May 1	5,657,862